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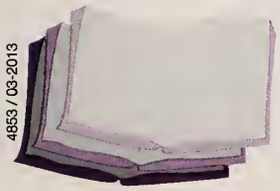

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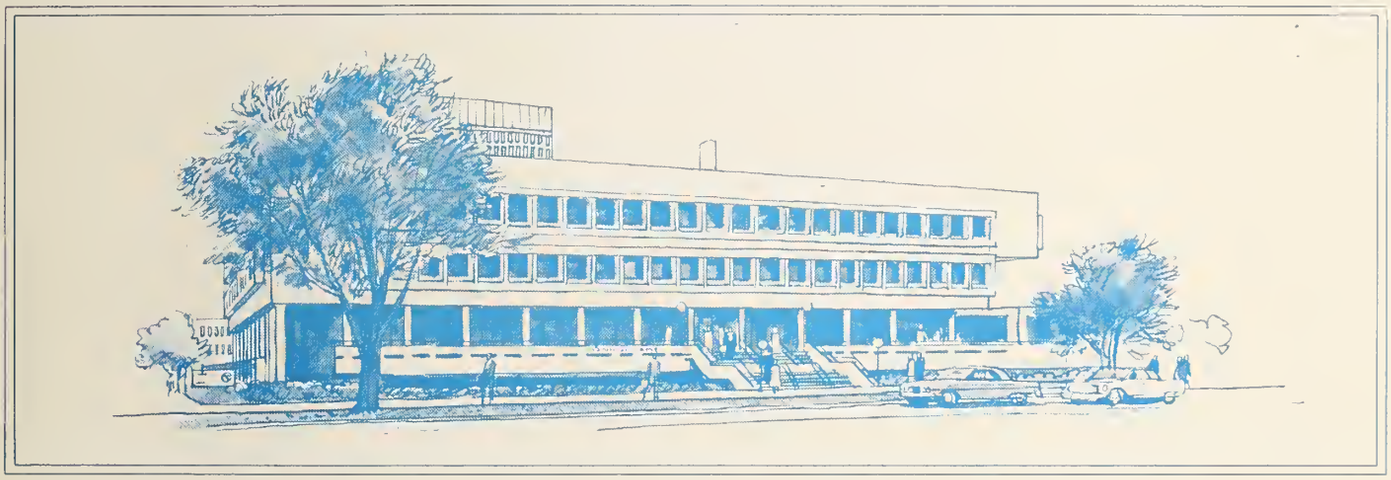

Addiction Research Foundation

DESIGNATION
TORONTO, ONTARIO
NOVEMBER 28, 1977

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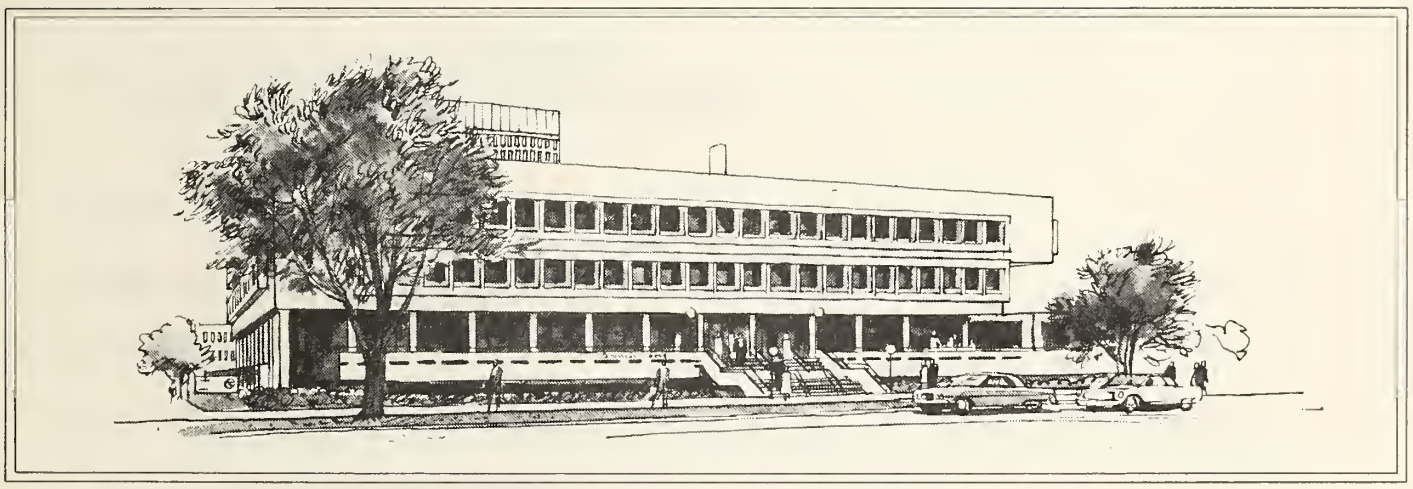

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FOREWORD

This document was prepared to commemorate the World Health Organization designation of the Addiction Research Foundation as a Collaborating Centre for Research and Training on Drug Dependence. The objective is to provide a summary of the major programs and activities of the Foundation so their importance and relevance to the international need may subsequently be determined.

To commemorate this significant development in the life of the Foundation, a WHO/ARF International Seminar will be held in Toronto, Canada, in November 1977. The theme of the Seminar is, appropriately, "International Collaboration—Problems and Opportunities." One of the objectives of the Seminar is to determine how the Foundation and other WHO Collaborating Centres can best contribute to the effort to manage more effectively the problems of alcohol and drug dependence, both locally and internationally.

The Addiction Research Foundation welcomes the opportunity to work in collaboration with the World Health Organization. This formal association with WHO will undoubtedly be of mutual benefit and, of even greater importance, of benefit to those in Canada and throughout the world who suffer from the impact of alcohol and drug dependence.

John B. Macdonald
President

H. David Archibald
Executive Vice-Chairman

On sabbatical in 1976 from the ARF, executive vice-chairman H. David Archibald was on special assignment with the WHO, commuting between Geneva and the Golden Triangle, where much of the world's opium is grown. Mr. Archibald was invited by the WHO to prepare a policy and program statement for the prevention and treatment of drug dependence.

WORLD HEALTH ORGANIZATION—ADDICTION RESEARCH FOUNDATION

In recent decades many health problems previously considered local in character have proved to have regional and global implications. Speedy and increasingly frequent international travel has converted certain seemingly national health problems into international health problems, giving rise to a great need for increased international collaboration in the search for methods to prevent and relieve human suffering. The problem of alcohol and drug dependence is a specific example. No longer can there by any doubt about the global nature of this problem. Few countries are exempt. Moreover, the patterns of drug use and the kinds of drugs used shift rapidly from region to region, country to country, and from district to district within countries. Thus, provincial, national, regional, and global research and training systems in this specialized health field should be closely interwoven, and the modern world must be viewed in terms of these inter-relationships. The World Health Organization has long recognized this "global fact" in carrying out its own unique international responsibility to lead in the search for solutions.

World Health Organization

On April 7, 1948, the World Health Organization took its place among the specialized agencies established under the Charter of the United Nations. The Constitutional Mandate of WHO requires the organization to "act as the directing and coordinating authority in international health work and to assist member governments, upon request, in strengthening health care services." The first WHO resolution relating directly to the field of alcohol and drug dependence was adopted by the WHO Executive Board in 1949--coincidentally, the same year legislation establishing the Addiction Research Foundation was passed by the Province of Ontario, Canada.

Since 1949, numerous resolutions have been adopted by the governing bodies of WHO. These resolutions, plus a comprehensive Policy and Program Statement for the Prevention and Treatment of Drug Dependence, provide policy and priority directives for the initiation and conduct of activities in this specialized field.

For example, the senior governing authority of WHO, the World Health

Assembly, in its 1975 session, expressed concern about "the humanitarian necessity to provide health care and appropriate treatment and rehabilitation for drug dependent persons" and stated unequivocally that 'in the long run, the serious public health problems resulting from the increasing self-administration of dependence-producing drugs cannot be solved unless prompt and effective measures are taken in all countries of the world." In the same session, the Assembly requested the Director-General to undertake a number of activities in this field including the further development of a "world-wide exchange of information" and the further development of "activities related to prevention, treatment, rehabilitation, and research."

This resolution emphasizes one of the most important functions of WHO; that is, the international transfer of information on health matters, with WHO being used as neutral ground for abstracting, distilling, synthesizing, and disseminating information that has practical value for countries in solving their health problems. Thus coordination of international health work and technical cooperation (including information transfer), leading to the adaptation and application of relevant information at the Country level, are major functional priorities of WHO. These priorities embrace problems such as alcohol and drug dependence that have a high degree of social relevance for member States.

It should be noted that one of the principles governing WHO's activities in any country is to ensure that all WHO programs will contribute significantly to the improvement of the health status of the population through methods they can apply now, and at a cost they can afford now. Therefore, the adaptation and application of existing knowledge must take into account the social, cultural, and economic context within which the knowledge will be applied.

WHO Policy on Collaborating Centres

In relation to the need, the human and technical resources within WHO are limited. Consequently, WHO is now implementing a policy which enables the organization to develop collaborative relationships with well-developed Centres of excellence such as the Addiction Research Foundation. Within the Foundation and other Centres external to WHO, is a considerable body of knowledge and experience that can be of assistance to WHO and its member countries.

The objectives of this policy are:

(1) To develop through WHO/UN leadership, a coordinating and planning mechanism whereby the resources of knowledge and experience at present residing in developed research and training institutes and institutions in the field of alcohol and drug dependence may be applied to maximum benefit elsewhere, especially in developing countries;

(2) To identify research priorities, and promote international collaboration in research and training;

(3) To pay particular attention to the needs of developing countries and priority areas which are not being adequately supported;

(4) To assist WHO/UN in a review and evaluation of various policies and programs for the reduction of the demand for and supply of drugs, including alcohol.

The Addiction Research Foundation—A WHO Collaborating Centre

Subsequently, in March of 1977, the Director-General of the World Health Organization, after consultation with the Government of Canada, invited the Addiction Research Foundation of Ontario to become an official "WHO Collaborating Centre for Research and Training on Drug Dependence." The relevant functions of the Foundation, as identified in the official letter from WHO, represent in all instances areas in which the Foundation has active programs. These functions are:

(1) Research and training programs concerned with the entire range of medical and social aspects of alcohol and drug dependence problems;

(2) Development and application of research instruments and methods for epidemiological studies and the evaluation of treatment, rehabilitation, community development, and prevention programs in alcohol and drug dependence;

(3) Studies to determine the best methods of providing treatment for alcohol and drug dependent persons;

(4) Development and application of methods

a. for drug analysis

b. for analyzing dependence potential of drugs

c. for determining the effects of drugs, single or in combination with other drugs, on animals and humans through controlled trials

d. for detection and identification of drugs with dependence liability in body fluids;

(5) Provision of scientific information concerning drugs with dependence liability and their effects;

(6) Development of training programs for various types of professional personnel with special reference to the needs of developing countries;

(7) Assistance to WHO in the development of a collaborative relationship with a number of Centres of excellence and with appropriate non-governmental organization in official relations with WHO, with the objective of developing an effective international mechanism for information transfer.

Since its inception in 1949, the Addiction Research Foundation has maintained a strong international linkage. It was realized early that the Foundation has much to learn from experience in other countries and from international agencies such as the World Health Organization. Conversely, as the

Foundation's program developed, it became clear that Canadian experience could contribute significantly to the developing world knowledge in this field.

Over the years, members of staff of the Foundation have served on various WHO committees and as WHO consultants. These activities provide a strong base both for contributing knowledge and for benefiting from the experience derived from developments and programs throughout the world. Moreover, since WHO plans to select a small number of other Centres of excellence in other countries, the opportunity is provided for enhancement of the Foundation's work through direct association with these Centres.

The WHO designation carries with it a responsibility to examine carefully the kinds of contributions the Foundation can make to the world community. Activities such as an effective organization of training programs for persons selected by WHO from countries that do not have such well-developed Centres will be important. International collaboration on research projects will also be one of the opportunities and obligations. For example, the Foundation has entered into a contract with WHO to assist in the implementation of a research project to encourage comparability of data collection in drug use surveys of young people. In addition, the Foundation is collaborating internationally in a study of alcohol-related disabilities—the Canadian study being conducted in a region of Ontario that requested that such a study be done. These, plus a number of other programs, are examples of activities that fall within the responsibilities of a WHO Collaborating Centre.

The Addiction Research Foundation looks forward with anticipation to a mutually beneficial collaboration in our work with the World Health Organization and other members of the international community.

H. David Archibald
Executive Vice-Chairman
Addiction Research Foundation

Researchers monitor results of a Naloxon Challenge Test which measures a battery of physiological factors including EKG, respiration, hand tremors, skin temperature, heart rate, and bowel sounds of patients taking Naloxon, a drug which reverses the effects of narcotic agents such as heroin.

RESEARCH

Research carried out under Foundation auspices during the past year falls into four main areas: *behavioral,* comprising experimental studies aimed at discovering behavioral factors which contribute to the development of hazardous levels of alcohol or other drug consumption; *biomedical,* comprising both clinical and laboratory studies which aim to throw further light on the acute and chronic physical effects of such consumption; *epidemiological,* comprising studies to discover the prevalence of alcohol and other drug problems in the population at large, and factors causing changes in prevalence; and *evaluative and treatment research,* comprising studies to assess the effectiveness of possible methods of prevention or treatment. Progress in the area of treatment research is reported in the next section since it is most appropriately considered in the context of Foundation efforts in the field of patient care in general. The nature and results of the principal research in other areas is described below.

BEHAVIORAL RESEARCH

Non-Pharmacological Determinants of Alcohol Consumption

Non-pharmacological factors are vital determinants of consumption of alcohol and of its behavioral effects. In the ARF laboratories it has been shown that the effects of alcohol on mood are determined by the social environment in which intoxication occurs. Research into the role of such non-pharmacological variables has been extended in investigations of chronic drinking in alcoholic subjects. In one kind of experimental situation, the regulation of consumption in this population does not seem to depend on a critical pharmacological factor, namely the amount of alcohol in a unit dose. Alcoholics did not adjust consumption upward to compensate for reductions in the amount of alcohol in drinks that were freely available. These results suggest that the pharmacological consequences of alcohol constitute only one of a number of variables that determines consumption. Any intervention strategy aimed at reducing individual consumption must take such findings into account.

An Animal Model of Excessive Alcohol Consumption

A primary effort in behavioral research on drug abuse involves the development of experimental animal models of voluntarily maintained high levels of drug consumption. One such model that has been developed exploits the fact that exceedingly high levels of alcohol consumption in rats can be engendered by manipulating aspects of reinforcement schedules of food availability. This work has examined the relationship of the level and pattern of alcohol consumption maintained by this technique to the development of physical dependence. Indications are that there is a threshold of alcohol consumption that is necessary for the development of certain withdrawal signs, and that the use of this technique to produce physical dependence must take into account the nutritional consequences of the procedure. More generally, results from this model have led to the theoretical proposition that excessive self-administration of drugs is a special case of excessive behavior that is under the control of reinforcement schedules in the natural environment. Such a conceptualization of drug abuse may ultimately point to interventions designed to reduce drug consumption in populations.

Behavioral Modulation of Tolerance and Dependence

Tolerance and physical dependence are often viewed as defining characteristics of addiction to alcohol and other psychoactive drugs. Tolerance may be understood as an adaptation to the disruptive effects that drugs have on an organism's attempts to meet the behavioral demands of its environment; physical dependence or withdrawal may be understood as consequences of the former adaptation that become evident upon cessation of drug use. Since both tolerance and withdrawal can be enhanced by similar behavioral manipulations, it is useful to attempt to understand them in terms of similar underlying mechanisms. One such mechanism that has been identified is Pavlovian conditioning, which has been investigated in two basic models of adaptation to drug effects. It has been found that purely behavioral procedures can attenuate or even eliminate adaptation to the analgesic effect of morphine or to the ability of amphetamine to control behavior. In the case of morphine, the work of another laboratory has been replicated and extended by exploring the doses at which behavioral procedures are effective in reversing tolerance. Initial results suggest that the effectiveness of these procedures is dose-dependent. Future work on this problem will be directed toward determining whether these behavioral manipulations affect withdrawal as well as tolerance. Since the behavioral procedures involved have counterparts that can be utilized with human populations, the results of this research will feed into an existing literature that recommends conditioning therapies for the treatment of drug abuse.

Drug-Environment Interactions in Tolerance Development

Earlier observations had indicated that the rate and degree of tolerance development are markedly influenced by the behavioral demands imposed upon the subject during the periods in which the alcohol is exerting its intoxicant effects. These observations have been greatly extended in relation to other drugs, including barbiturates and amphetamines. Both tolerance and sensitization ("reverse tolerance") appear to be conditioned responses, dependent upon the

interaction of the drug and the environmental stimuli associated with the testing procedure. More detailed analysis of the development of tolerance and physical dependence in animals treated chronically with morphine has also revealed drug-environment interactions. Further, morphine tolerance and alcohol tolerance have been found to be complex phenomena, with tolerance appearing at different rates to different effects in the same animals. A major study has just been completed in which the effects of dose, frequency of administration, and behavioral demand on the rate of development and loss of alcohol tolerance have been measured systematically. The objective of this work is to identify conditions in which loss of tolerance and dependence can be achieved most rapidly and dependably in the treatment of alcohol and drug-dependent patients.

Another study in the area of behavioral research, which has clear practical implications, involves a comparison of the accuracy of blood-alcohol estimation between alcoholics and moderate drinkers. The objective is to assess the ability to estimate blood alcohol level from introspective cues, and to determine whether or not the abilities of the alcoholic to make such estimates, and to retain special training in this regard, are relatively impaired.

Finally, a large scale multidisciplinary project concerned with alcohol tolerance and withdrawal in man is currently in the planning stage. The immediate objective is to provide basic descriptive data on the consequences of repeated exposure to alcohol in non-alcoholic volunteers. The ultimate objective is to provide knowledge of the relationship of tolerance and withdrawal effects to the most crucial behavioral aspect of drug abuse, namely, the excessive self-administration of psychoactive drugs.

BIOMEDICAL RESEARCH

An important part of the research program in this area is concerned with neurophysiological and neurochemical aspects of tolerance and dependence. Clearly an understanding of the cellular mechanisms underlying the latter phenomena is basic to the ultimate development of methods to prevent or reverse them. This work may be seen as essentially complementing, at an organic level, much of the behavioral research just described. The neurobiological projects current during the past year were as follows:

Brain Function and Narcotic Dependence

Because abused drugs are agents that exert their primary effects via the central nervous system (CNS), it is logical to explore the relationship between particular brain structures and drug dependence. Using the strategy of lesioning brain sites, it has been found that the brains of rats possess great plasticity in relation to morphine dependence. For example, lesions that appear to suppress withdrawal signs apparently lose this ability if sufficient recovery time between destruction by lesion and the production and measurement of dependence is permitted. However, lesions that did not suppress withdrawal signs did reduce the level of self-administration, suggesting the possibility of a dissociation of the neural mechanisms governing withdrawal intensity on the one hand and drug consumption on the other. Complementary to this research is work involving recording of electrical activity from single cells located in particular brain sites

believed to be involved in narcotic dependence. After considerable effort devoted to developing experimental techniques, data are now being collected on the response of individual neurons in the medial thalamus of the brains of rats to acute morphine administration. These cells were not differentially affected by doses of morphine that had a graded effect on the electroencephalograph (EEG). Thus, comparisons of sensitivities to different doses in various sites and to the EEG may provide a "map" of the comparative responsiveness of these sites to morphine.

Brain Function and Tolerance to Alcohol, Barbiturates, and Morphine

Studies during the past year have involved attempts to identify primary sites of alcohol action and tolerance development in the brains of rats in which permanent electrodes have been implanted. These electrodes serve to record simultaneously the electrical activity of single brain cells, and regional electroencephalographic (EEG) activity in conscious normal animals. Different doses of alcohol have been tested acutely, and the animals are now being studied during the development of tolerance. Single cell recordings in the hippocampus have been found to be much more sensitive indicators of alcohol effects than EEG tracings of whole brain. Neurochemical studies have centred on the role of a chemical transmitter substance, serotonin, in the development of tolerance to alcohol and barbiturates. The amino acid tryptophan, which increases serotonin levels in the brain, increased the rate of tolerance development. Inhibitors of serotonin synthesis impeded development of tolerance to drug effects on neuromuscular coordination and body temperature control, but not to the effects on consciousness. In other studies, certain peptide hormone derivatives, which are also believed to act as transmitter substances in the brain, have been tested for their effects on development of tolerance to, and consumption of, alcohol and morphine. These peptides are known to play an important role in the retention of learned behaviors. If they play a similar role in the retention of tolerance and learned drug consumption, modification of their action in the brain may offer a useful approach to "unlearning" drug-oriented behavior.

Neurocellular Mechanisms of Drug Tolerance, Dependence, and Withdrawal

This is being studied through the use of cellular neurophysiological techniques in the simple neuromuscular junction and the more complicated brain slice. It has been shown that both pre and postsynaptic tolerance occurs to alcohol in the neuromuscular junction. These results are being generalized to brain slice. It has also been shown that acetaldehyde—the first metabolite of alcohol—in doses much lower than with alcohol, causes presynaptic blockade of synaptic transmission. Acute pentobarbital administration has been reported to decrease presynaptic transmitter release *in vivo* in cat spinal cord without postsynaptic effects. Recent work in the Foundation's laboratory has demonstrated significant postsynaptic effects as wel..

Other research in the biomedical area falls mainly into three areas—studies of metabolism, of organic damage, and of drug interaction effects. It may be summarized as follows:

Studies of Alcohol and Drug Metabolism

Because of a possible connection between drug metabolism and drug-induced pathology, there has been continued interest in the mechanisms which regulate the rate of drug metabolism in the liver and other organs. Studies in the past year have included detailed comparisons of two strains of rat (Wistar and SHR) which differ markedly in their metabolic responses to alcohol at different ages. The rates of alcohol and pentobarbital metabolism *in vivo*, and by isolated perfused livers and suspensions of isolated liver cells from the two strains, have been compared with the rates of oxygen utilization. Modification of alcohol metabolism by fructose, sorbitol, dinitrophenol, pyrazole derivates, and adrenergic blockers has also been compared in the two rat strains. For this purpose, a very potent new pyrazole derivative, pentylpyrazole, has been synthesized. The results to date require some modification of our earlier concept of mitochrondrial oxidation rate as the sole rate-limiting factor in the metabolism of alcohol, and are leading toward a different kinetic scheme in which the rate of metabolism can be altered by modification of any one or more of a series of sequential reactions occurring in the liver cell.

Studies of Organic Damage by Alcohol and Other Drugs

A major clinical study (reported in greater detail in the next section) of the treatment of acute alcoholic liver disease by propylthiouracil (PTU) is nearly complete, and final evaluation of the results is being carried out. PTU treatment resulted in a highly significant increase in the rate of normalization of liver function. At the same time, animal experiments have been continued in a search for ways of retarding the formation of fibrous tissue, or accelerating its removal, with a view to developing treatment for established cases of liver cirrhosis. These experiments have included the effect of alcohol on the turnover of collagen proteins, the effect of diet composition on the formation of collagen, and the mechanism of initiation of scar formation by liver cell death resulting from oxygen deficiency in alcohol-treated animals.

Research on the causes of liver damage associated with heavy alcohol consumption is also being conducted at a clinical level. This work is concerned with changes in the Disse Space found in alcoholics with and without liver disease. There are reasons to think that in chronic alcoholics the exchange of substances between the liver cell and the sinusoids and vice versa is abnormal. One possibility to explain these findings is an abnormal Disse Space through which the exchange must take place. About 40 chronic alcoholics without histological evidence of liver damage have been studied. Abnormalities in the Disse Space, consisting of fibrous tissue deposition and/or formation of basement membranes were found in the majority. There was no correlation between these abnormalities and the period of withdrawal from 24 hours or less up to 45 days. The possibility is now being studied of a correlation of the abnormalities of the Disse Space with the clinical and laboratory parameters of liver damage.

Another clinical study is concerned with the potentially pathological effects of alcohol on the esophageal mucosa. This study seeks to determine whether or not the effects of alcohol in the epithelial barrier of the stomach are comparable to those found with alcohol in the stomach. A special Bag of Visking tube that permits the free exchange of H^+, Cl, Na^+, and K^+ has been designed to

assess whether there is an esophageal mucosal barrier. Preliminary results have shown that probably there is no such barrier, but that the loss of H^+ and gain of Na^+ is more marked in chronic alcoholics than in normals. The findings will be correlated with the history of alcoholism and the presence or absence of esophagitis.

A study of myopathy due to chronic alcohol abuse—probably the most common form in the adult population—is also underway. Alcoholics in withdrawal are being examined to follow the biochemical and histological changes underlying recovery of muscle function with abstinence.

Finally, there are several studies at an animal level of the pathological effects of alcohol on the brain. These include studies of the cellular basis of learning deficits after chronic administration of alcohol and marijuana extract. Microscopic alterations in contacts between cells in brain cortex (cerebral and hippocampal) suggest a possible organic basis for the observed learning deficits. This work is still in a preliminary stage. In addition, cerebral atrophy due to long-term heavy alcohol consumption is being studied. Using a Golgi stain, which specifically stains neuronal processes, it has been demonstrated that cerebral cortical neurones from alcohol-fed rats have a decreased number of neuronal processes. This work is being extended to human autopsy specimens.

Studies of Diazepam–Alcohol Interaction Effects

Because diazepam (Valium) and alcohol are both very widely used, it is very likely that the two drugs will be taken together from time to time. Accordingly, it is important to determine the effects of the combination on motor performance and perception. A study conducted to this end found that alcohol enhanced the sedative and motor impairment effects of diazepam by increasing blood diazepam concentrations, and also caused potentiation in the brain. These findings have clear implications for motor vehicle safety. Related instrumental research involved the development of a sensitive assay of diazepam and its principal metabolite in saliva. This now provides a practical way to determine the occurrence of the drug in the impaired driver.

EPIDEMIOLOGICAL RESEARCH

A considerable portion of the work in this area of research has been concerned with the potential hazards to health—both physical and sociobehavioral—of alcohol and other drug abuse. The projects so directed are described below.

Morbidity Studies of the Alcoholic Population

A major project in the past year has concerned the patterns of physical disease encountered in alcoholic populations. A profile of the lifetime physical disease experience of 1,000 in-patient alcoholics was constructed to determine the types and amounts of physical disease experienced by these populations. Although the diverse effects of hazardous alcohol use were clearly reflected in this profile, morbidity involving the liver and biliary tract, gastrointestinal tract, respiratory tract, and nervous system predominated. Trauma was also frequently

experienced. A pattern of disease occurence in relation to the onset of hazardous drinking emerged, some types of morbidity tending to occur earlier in the course of hazardous drinking, while other types were usually later consequences. A pattern of disease clustering was discerned, which could be attributed to elements in the alcoholic lifestyle and environment as well as to the toxic effects of alcohol *per se*.

Certain subgroups of the alcoholic population were studied in more detail to ascertain the influence of various demographic, sociologic, drinking, and drug use characteristics on the physical disease profile. For example, a comparison of skid row and non-skid row alcoholics revealed a distinct skid row profile which clearly reflected the unique sociologic-environmental circumstances of skid row. As well, comparisons were carried out to determine the influences of social class, the pattern of drinking ("continuous" versus "intermittent"), and sex. The findings of these studies have implications with regard to the etiology, pathogenesis, and prevention of the physical disease consequences of alcoholism, and suggested areas in which further study might be fruitful.

An area of new research activity concerned the occurrence of heart disease in alcoholic populations. Mortality and morbidity from heart disease in alcoholics has been shown to exceed that expected from findings in the general population. Furthermore, of the excess mortality from all causes experienced by alcoholic populations almost one-third can be attributed to heart disease. As an initial undertaking, a review of the literature was carried out and a manuscript was prepared for publication. In this document an attempt was made, firstly, to document the extent of the problem of heart disease in alcoholic populations, and secondly, to identify and assess the influence of various factors contributing to the problem. In addition to the effects of alcohol *per se* on the caridovascular system it is clear that lifestyle factors, for example heavy smoking, and other concomitants of alcoholism, such as hypertension and hyperlipidemia, may contribute to greater or lesser extents to the problem. This review indicated a number of areas in which additional research is required.

Mortality Studies of the Alcoholic Population

The primary data previously compiled on the mortality experience of alcoholics, mainly from the Toronto area, now comprise a sample in excess of 100,000 man years. This very large sample permits examination of many questions respecting the causes and patterns of mortality which have not been answerable in the past owing to the small samples usually employed in mortality studies. So far, it is clear that chronic heavy users of alcohol have a very substantially elevated risk of premature death, and that the acute and chronic effects of alcohol explain a considerable part of the excess mortality. Currently, studies are underway of sex-linked susceptibilities to alcohol and smoking-related diseases, of independent and synergistic effects of alcohol use and smoking on the development of certain cancers, and of sex differences in the overall mortality experience of alcoholics.

Epidemiology of Hepatitis B in Drug Abusers, Chronic Alcoholics, and ARF Staff

This work is in the process of being written for publication. After screening all drug abusers and 150 alcoholics plus the staff of the Addiction Research Foundation for two years, a very high incidence of HBsAgB, a component of the virus that causes infectious hepatitis B, was found in intravenous abusers. Patients abusing drugs by routes other than intravenous had an incidence comparable to that found in blood donors in Toronto. Chronic alcoholics had no increase in incidence over a normal population, except when homosexuality was associated and then the incidence of HBsAg was very high.

Patients (26) with chronic liver disease among drug abusers, even when presenting with the characteristics of chronic active hepatitis, do not seem to have the same severe course of disease than when the histological features are found in non-drug addicts. None of our cases, up to seven years of known chronic alcoholic hepatitis, has progressed to cirrhosis or has severe liver disease.

Analytical Studies of Street Drugs

The major drug substances encountered among 214 samples analyzed were cannabinoid preparations (i.e. marijuana, hashish, hashish oil, etc.) and phencyclidine. Thus phencyclidine, a synthetic CNS depressant/hallucinogen, is apparently still a widely-used drug associated with adverse clinical effects, while LSD and MDA are used less extensively and/or are associated with fewer clinical problems than previously.

Because of the frequent occurrence of phencyclidine (PCP) among street drug samples brought to the Foundation for analysis, special studies of this substance were initiated, as well as of PCC—an intermediate in the synthesis of phencyclidine. Under manufacturing conditions with poor quality control it would not be unexpected to have residual PCC present in the final product. Indeed, it has been reported that the presence of PCC in the product is associated with clinically significant adverse effects. Our laboratory has confirmed that PCC is sometimes present in illicit PCP preparations, and studies have been begun with the following objectives: 1. to develop a quantitative assay for PCC for screening street samples for its presence, and for measurement in biological fluids; 2. to determine the conditions of synthesis which affect the amount of contaminant remaining; and 3. to study the effects of admixture of PCC with PCP in an *in vitro* liver microsomal preparation, and in the rat, using such behavioral tests as treadmill, open field, hot plate, and sleeping time.

Preliminary experimental data indicate that a dose of PCC which produces no impairment of treadmill performance in rats produces a consistent shift in the dose-treadmill response curve for PCP, that is, a non-impairing dose of PCC increases PCP-induced impairment of treadmill performance at all doses. Since treadmill performance impairment appears to be associated with ataxia, and since low doses of PCP produce ataxia in man, it is reasonable that PCC may contribute to PCP impairment in man, as well.

ARF Street Drug Notes has now been standardized as a quarterly newsletter, and is distributed to all hospitals and Medical Officers of Health in the

province, to approximately 50 other physicians and treatment services, and to approximately 100 other helping persons or services in Ontario (including social agencies, police, parole boards, and guidance counselors).

Clinical Epidemiological Survey of Drug Overdose Patients

Attempted suicide with drugs or accidental ingestion of large amounts of psychoactive drugs constitutes a serious problem, particularly among the young. A study of 3,500 acute drug ingestion and drug abuse patients in 21 emergency rooms of metropolitan Toronto hospitals has provided an unusally complete picture of patient characteristics, etiologic factors, and treatment patterns. More that 30% of these patients ingest alcohol and the majority of these patients have blood alcohol levels that occur only in patients with chronic alcohol abuse problems. Alcoholism is therefore a primary problem in many overdose patients. The patterns of drugs taken in overdose corresponds closely to the frequency of psychoactive drug prescribing in Ontario suggesting that availability is an important determinant of what drug is taken. This study helps to identify: 1. the magnitude of the overdose problem; 2. individuals likely to overdose, and 3. drugs likely to cause serious problems. It also indicates a number of remedial actions that could be taken.

Studies of the Social and Behavioral Consequences of Benzodiazepine Use

The benzodiazepines, introduced in Canada in the early 1960s, have become among the most widely-prescribed drugs in contemporary medical practice. Medical indications for their use are steadily broadening. In the past, attention was directed primarily to epidemiological studies of comparative consumption trends, as well as prescribing patterns of physicians. Currently, a new aspect is under study, namely problems created by chronic use of these drugs as they are now prescribed. So far, preliminary work has revealed a wide range of untoward reaction, both physical and social.

Other epidemiological projects, although in many respects similar to those described have as their primary objective the provision of baseline data for strategies of prevention or health care delivery. These projects commonly focus on particular segments of the population of Ontario or on particular regions within the province. The principal projects during the past year were as follows:

Surveys of Treatment Resources and the Prevalence of Alcohol and Drug Problems

In the London Area, a survey was initiated to collect up-to-date information on the number of alcohol and drug abusers receiving care, and on the nature and extent of the services provided. The objective is to develop an approach which would result in the integration of these services. A similar survey of cases presenting at a wide range of social, medical, legal, and other community settings is being conducted in the Kingston area. The objectives are to determine the nature and extent of alcohol problems in the area, and to promote an increase in case-finding priority and capability in the community agencies. In an attempt to identify existing alcoholism treatment service gaps in the Windsor area, a total of 69 physicians, 88 clergy, and personnel from 67

programs. An evaluation has been made of a number of these programs which seek to induce employed alcoholics to obtain treatment. At present the referral rate for alcoholism amounts to about 1% of the employed population, but accurate data on the prevalence of the problem in this population are not yet available. Future research is being planned to obtain prevalence data for a variety of employed groups, and to improve the scope and effectiveness of these programs. In the latter regard, an evaluative study will be undertaken of a model employee assistance program to be developed for the Ministry of Transportation and Communications in the North Bay district. This program will aim at earlier identification of employees with alcohol problems and at better provision of treatment resources. Finally, in Metro Toronto (Etobicoke), a study has been initiated to assess the nature and current level of involvement of employers in occupational alcoholism programs.

Studies of Interventions Aimed at the General Public

Several studies have been concerned with the development and evaluation of mass educational strategies intended to increase awareness of the public health consequences of rising alcohol consumption. To this end, appropriate television spot messages have been developed and their impact on the viewing audience in the London area of Ontario is being evaluated. Recently, an assessment of the role of the print media in increasing public awareness of alcohol-related issues was completed. Efforts are continuing in Oxford County to test the effectiveness of key informants in the community in promoting public awareness. Local surveys to assess attitudes towards the use of alcohol and the implementation of control measures have been carried out, and one study is concerned with the content of popular educational materials dealing with alcohol and alcoholism. Over the years, there has been a profusion of such materials emanating from many different sources. The purpose of research on this topic is to gain a systematized knowledge of what the public wants to know so that a system may be created whereby the full spectrum of popular education materials can be appropriately analyzed and indexed.

Lastly, a major research undertaking, highly relevant to the issue of primary prevention, has as its objective the detailed examination of the alcohol control experiences of a number of different countries. In 1975, ARF researchers, in collaboration with a small international working group, assessed the state of knowledge concerning the effect of control measures on alcohol consumption and related problems. In their report it was stressed that a thorough understanding of these issues required comparative case studies involving countries with different drinking customs and traditions of alcohol. Accordingly, in cooperation with workers in eight other countries, a series of studies has been initiated to elucidate the economic and fiscal impact of alcohol production and consumption, the consequences of drinking, and the effects of alcohol control policies on the prevalence of alcohol problems. It is anticipated that the results of this project, and of other research described, will provide the basis for recommendations respecting an effective control system for local application.

agencies were sampled systematically and interviewed. A report is now being written on the results of this study. Finally, ARF staff in collaboration with the World Health Organization will carry out a study of the nature and extent of alcohol problems in the Durham Region during the coming year. This is seen as a part of a broader study of community responses to such problems.

A Study of Alcohol Problems in Northwestern Ontario

The purpose of this study was to provide an overview of consumption patterns and alcohol-related social and health problems in Northwestern Ontario. It was found that the level of alcohol consumption was higher than that of the province as a whole, and increasing more rapidly than the provincial trends; that there are twice as many outlets per capita as in the province generally; that the cost of alcohol relative to other consumer goods is lower than in southern Ontario; and that alcohol- related arrests, accidents, acts of violence, and deaths exceed provincial averages. On the basis of these findings it has been recommended that greater emphasis should be placed on the use and enforcement of existing laws which restrict the availability of alcohol, and on greater community involvement in the development of local alcohol policies.

Ontario School Surveys

The earlier studies of alcohol and drug use in the Toronto area were replaced by a study in all areas of Ontario. This study provides a much better picture of youthful alcohol and drug use than was available before. Detailed results have been reported by region, with alcohol use and many types of drug use higher in the northern areas. It is expected that this study will be repeated every two years in order to provide a continuing picture of trends in alcohol and drug use among young people in Ontario.

Studies Concerned with the Forecasting of Alcohol Consumption in Ontario

Earlier work has demonstrated that: 1. per capita alcohol consumption in a population is a valid indicator of the prevalence of alcohol-related health problems in the population; and 2. alcoholic beverages behave like other commodities on the market, so that their consumption is affected by their price level and the disposable income. Based on these findings, models for producing forecasts of consumption for Canada as a whole and for Ontario have been developed. Predictions based on these models indicated a considerable increase in demand for alcoholic beverages over the next decade. Currently, simulations to evaluate the impact on alcohol consumption due to possible changes in taxation are being performed. The goal is the development of policy guidelines to achieve stabilization or reduction of alcohol consumption through taxation.

EVALUATIVE RESEARCH

Apart from studies of different treatment methods, which are described in the section on research into patient care and treatment, the evaluative research conducted during the past year has been concerned mainly with determining the

effectiveness of attempts at primary or secondary prevention through education, community development, or legal control. The principal target groups have been young people, drinking drivers, employed alcoholics, and the public at large.

Studies of Intervention Aimed at Young People

A large amount of effort on the part of researchers and teachers has gone into the development of a sophisticated alcohol education curriculum for Grades 7, 8, 9, and 10. An extensive experimental program of testing has been completed for this program and the final report is being prepared. In Kent County, a survey was conducted of 465 Grade 9 students randomly selected from the county's schools. Based on the content of the curriculum outline developed by the Kent County Board of Education, this study examined student knowledge, attitudes, and behavior with respect to drugs and alcohol. The final report is in preparation. In Metro Toronto, a study was carried out to determine the relative impact of three different approaches to alcohol education (decision-making, values clarification, and high level problem-solving) on Grade 9 students at three high schools in Etobicoke.

With respect to legal controls, several studies have been made of the effects of reducing the legal drinking age on the alcohol consumption, incidence of alcohol-related traffic accidents, and admissions of young people to treatment for alcoholism. The frequency of drunkenness and drinking problems among high school students has been investigated, and such problems were found to be most common among males, those who drank in cars, and those whose drinking was not known to their parents. Substantial research has also been done on the effect is of current laws respecting the possession of cannabis. One study of persons convicted for possession of this drug, and who were followed up a year later, found that the conviction had had virtually no deterrent effect.

Studies of Interventions Aimed at the Drinking Driver

A study is being made of various approaches to educating the public about impaired driving. Several versions of a popular film "Collision Course" have been made. Each version has a different ending and differs in the amount of fear or other emotional content. The objective is to determine the relative effectiveness of high and low fear messages. Several court programs for convicted drinking drivers are being evaluated, and other relevant research is concerned with the extent of drinking and driving among high school students and the impact of seat belt legislation on alcohol-related accidents. Of particular interest is a demonstration project launched in Etobicoke with the aim of reducing the rate of alcohol-related accidents in that jurisdiction. The project is being undertaken in collaboration with the Etobicoke Safety Council and the Metro Toronto Police Department. It will involve a careful evaluation of the effectiveness of an intensive public education program combined with a program of high visibility roadside spot checks by police over a period of a year.

Studies of Interventions Aimed at the Employed Alcoholic

Foundation staff are currently working with some 350 industries in different parts of Ontario to encourage the adoption of employee assistance

ARF coordinated a drinking and driving program, called RIDE, for Etobicoke, a borough of Toronto. The year-long program, which involves cooperation between the borough's government, safety council, and the Metropolitan Toronto Police, is attempting to reduce the incidence of alcohol-related automobile accidents and the incidence of impaired driving arrests by presenting factual information about alcohol and increasing police enforcement of existing laws.

RESEARCH INTO PATIENT CARE AND TREATMENT

Treatment research is concerned with the development of effective and efficient methods of assessment and intervention the aims of which are to alter the drug-using behavior and to improve or stabilize the social, psychological, and physical state of those individuals whose patterns or levels of consumption of ethanol and/or other psychoactive substances are actually or potentially hazardous. In this context "hazardous" refers to a range of patterns or levels of consumption that are actually or potentially associated with adverse physical or sociobehavioral consequences. "Intervention" refers to a range of activities extending from the simplest, minimal forms (e.g. advice and information) to highly complex, specialized techniques (e.g. behavioral, pharmacological, and psychotherapeutic approaches). These interventions may be aimed at drinking or drug-using behavior *per se* or at associated physical or sociobehavioral factors which play a role in the causation or continuation of the condition. The interventions may be directed towards a person, an interaction, or a situation (e.g. the spouse, family, school system, or an employer of an identified problem user of ethanol or other psychoactive substances). Such a definition of treatment is intended to exclude primary prevention but at the same time it takes into account that the formal process of intervention is only one factor that may contribute to treatment outcome. Therapist and patient characteristics and contextual and other factors must also be considered.

TREATMENT OF PHYSICAL DAMAGE

Hazardous users of ethanol and other psychoactive substances suffer from a variety of physical diseases which are either complications of their drug use or are associated consequences of their lifestyle. These diseases, which are important causes of discomfort, incapacity, and death, adversely affect the socio-economic status of the drug users and their families, and contribute significantly to the province's burden of health costs. Of all the psychoactive substances, ethanol by far contributes the most to the drug-related health burden. The body organs which are of particular importance in this context are the brain, the liver, and the cardiovascular system.

Brain Damage

Clinically manifest brain damage associated with prolonged hazardous consumption of alcohol is about as common as alcoholic cirrhosis. Subclinical, reversible brain damage, manifested by disturbances of psychometric tests has a prevalence of the same order of magnitude as subclinical, reversible alcoholic liver disease. At one extreme, alcohol brain damage may be so severe as to cause major incapacity due to a disruption of normal memory and intellectual function. It is also possible that the more common subclinical forms may affect the outcome of rehabilitation efforts that focus on changing drinking behavior.

The Foundation's research is directed towards investigations of the diagnosis and assessment of brain damage as well as its causation, natural history, and the effects of various forms of intervention. Results of this program have so far shown that:

1. all alcoholics studied had some evidence of cerebral atrophy in excess of that expected in age-matched controls;

2. abstinence from alcohol was associated with some significant reversal of neurological and psychological deficits in over 50% of brain damaged alcoholic patients;

3. changes in the electroencephalographic alpha frequency, observed during the first month of abstinence, preceded and were good predictors of clinical improvement when measured over longer periods of observation, e.g. three months;

4. abstinence from alcohol in some patients has been correlated with an apparent reversibility of cerebral atrophy.

   These findings are consistent with the hypothesis that the decrease in cerebral volume is due at least in part to a reduction in neuronal processes and supporting cells of the brain (the neuropile) rather than to a death of nerve cells.

Studies initiated that will continue during the coming year include investigations of changes in the cellular structure of the brain associated with cerebral atrophy, and the value of piracetam in the treatment of alcoholic brain damage. These projects are being carried out in cooperation with the University of Toronto, Toronto General Hospital, and Toronto Western Hospital.

Alcoholic Liver Disease

Some degree of liver damage is an almost invariable consequence of prolonged hazardous consumption of alcohol. In the majority of alcoholic patients, the damage is subclinical. Others, however, develop clinically manifest fatty liver, alcoholic hepatitis, and/or cirrhosis. In Canada in recent years, cirrhosis has been the most rapidly increasing cause of death in the population over 25 years of age and it is estimated that approximately 80% of all cirrhosis deaths are attributable to alcohol. In Canada, alcoholic cirrhosis is now the fifth major cause of death among men in the productive years from 25 to 64.

Apart from abstinence, no specific treatment methods have altered the course of alcoholic liver disease. The physician has had to depend on general supportive measures and hope for a natural recovery of the severely ill patient. Basic research by the Foundation culminated in findings that suggested drugs used in the treatment of hyperthyroidism may also have a specific value in treating alcoholic hepatitis which itself is sometimes fatal, and is also considered to be the lesion that progresses to cirrhosis. During the last two years these findings from basic research have been further investigated at a clinical level.

Work in this area has been carried out in cooperation with the University of Toronto, and Toronto General, Toronto Western, St. Michael's, and Mount Sinai Hospitals.

Correlation of histological and functional abnormalities in alcoholic liver disease: This study showed that it is not possible to diagnose with reasonable accuracy the various types of alcoholic liver diseases unless clinical and laboratory findings are combined with the pathological study of liver tissue obtained by biopsy. Furthermore, it was found that current histological criteria for classifying liver damage do not correlate with the functional abnormalities found clinically or biochemically. A method was developed for measuring or scoring the severity of liver disease which took into account clinical, laboratory, and histological findings. This scoring index was of particular value in assessing the course of alcoholic liver disease in the study of propylthiouracil (PTU).

Serum T3 in patients with alcoholic liver disease: A striking inverse correlation has been found between the degree of liver damage (as determined clinically and histologically) and serum levels of T3. This relationship was of value in determining the severity and prognosis of the disease as well as monitoring its course. Those patients who improved had an average 70% increase in initial serum T3 values. Patients who failed to improve had no significant changes in T3. Those who died showed a progressive decline, all of them having T3 levels less than 50 ng/dl. The known inhibitory effect of PTU on hepatic conversion of T4 to T3 appeared to be masked by the improvement in liver function produced by the drug.

Treatment of alcoholic hepatitis with PTU: To date 125 patients with alcoholic liver disease have been studied in a double-blind experiment to determine whether PTU affects the course of alcoholic hepatitis. Analysis of data showed that PTU had a clear, beneficial effect in that patients with alcoholic hepatitis on the drug showed a greater and a more rapid improvement than those receiving the placebo. The course was unaffected in those patients in which fatty liver or cirrhosis was present without hepatitis.

Metabolism of chlordiazepoxide in patients with cirrhosis: Alcoholic patients frequently are prescribed or administered chlordiazepoxide. Studies have demonstrated that the breakdown of the drug is impaired in patients with cirrhosis and that this impairment can result in the cummulation of the drug to toxic levels when it is prescribed according to the usually accepted dosage.

Cardiovascular Disease

The major cause of death in alcoholic patients is some form of cardiovascular disease. It has been found that the risk of dying from this cause is significantly greater than it is in the general population, probably in the vicinity of a two-fold increase. Many mechanisms may be responsible for this increased risk. In an earlier Foundation study it was found that instances of sinus tachycardia were very common during withdrawal from alcohol, as were T-wave changes. Ventricular premature beats were found to be the commonest significant dysrhythmia and appeared to occur more commonly than would be expected in patients of a similar age without cardiovascular disease. Studies are proceeding on the frequency, nature, and course of cardiac arrhythmias and ECG changes in alcohol withdrawal and to determine whether propanolol, a β-blocking drug and/or chlordiazepoxide can prevent the transient arrhythmias that occur.

DRUG WITHDRAWAL

Hazardous users of alcohol and other psychoactive drugs are recurrently undergoing cyclical phases of intoxication and withdrawal. Withdrawal phenomena vary from mild to severe, some tending to be common to most agents while others are common to particular drug classes. These phenomena encompass a range of physiological and psychological disturbances. Severe degrees of withdrawal may be life-threatening and require expert medical care while minor withdrawal requires no treatment whatsoever.

Alcohol withdrawal: Studies have been carried out of alternate routes of administering chlordiazepoxide which is commonly used for the treatment of alcohol withdrawal. It is frequently given by the intramuscular route but studies have revealed that intramuscular chlordiazepoxide is slowly and incompletely absorbed. By contrast, oral administration of the drug is followed by rapid and complete absorption and is clearly the preferred method of administering the drug.

Barbiturate withdrawal: This condition presents particular difficulties in diagnosis and therapy. Initial studies of the use of a single slow infusion of phenobarbital in the management of barbiturate withdrawal indicate that the technique has diagnostic value. It is also simpler and more effective than other methods of treatment. The findings from this study may have implications for the treatment of other forms of drug withdrawal.

INTERVENTIONS TO ALTER DRUG-USING BEHAVIOR AND/OR SOCIOBEHAVIORAL CONSEQUENCES OR ASSOCIATIONS

Included under this heading is a wide range of interventions whose general aims are to rehabilitate the patient, to make him better, to reduce or abolish the drug-using behavior. To date, research in this field has been largely ineffective in revealing treatment methods that are clearly of value. However, the overriding importance of the patients' characteristics as determinants of prognosis has been repeatedly confirmed. The Foundation's research into this type of treatment reflects these facts both in its findings as well as in its plans

to develop research methods which attempt to match patients to specific methods of intervention.

Drug Therapy: Dependence on Narcotic Analgesics

Use of naloxone in the diagnosis of dependence on narcotic analgesics: A major problem in treating individuals who claim to be dependent on narcotic analgesics is determining whether or not they are in fact physically dependent. Accurate diagnosis is particularly important if one is considering the possibility of using methadone, itself an opiate, in treatment. Naloxone, a narcotic antagonist, has been used previously in a "challenge" test to diagnose physical dependence by producing an acute withdrawal reaction. Unfortunately this test as usually used is subject to many difficulties that can lead to an incorrect diagnosis. Studies are currently ongoing with the aim of producing a more accurate test based on the detection and measurement of objective indices of withdrawal and the use of both naloxone and placebo.

Methadone treatment of dependence on narcotic analgesics: Among the many problems facing therapists using methadone in the treatment of narcotic dependence are how to determine the dosage and how to detect whether patients are supplementing their dosage with methadone obtained from other sources.

a) *Self-regulation of dosage:* Two studies have been conducted which allowed patients to determine their own dosage of methadone. In the first of these, the attempt was to regulate dosage during maintenance therapy and the second, to regulate dosage during methadone withdrawal. Self-regulation of maintenance appeared to be more successful than regulation by the therapist in that patients' symptoms were reduced by 20% and no untoward effects occurred. Most patients (88%) favored this method. The average dose increased from 45 mg/day (therapist regulated) to 64 mg/day (patient regulated). By contrast, self-regulation during withdrawal proved to be unsatisfactory and unsuccessful.

b) *Detection of methadone supplementation:* A pilot project was carried out of the excretion profiles of methadone and 1, 1, 1-trideutero-methadone in six normal subjects. There were two findings, namely that the ratio of labeled : unlabeled levels of methadone and the two methadone metabolites in the urine were identical with the ratio of labeled : unlabeled in the dosage form administered. Both findings support the hypothesis that deuterium-labeled methadone could be used as a "marker" substance in methadone preparations dispensed by treatment programs to facilitate the detection of methadone supplementation by patients dependent on narcotic analgesics. This work was carried out in conjunction with the University of Toronto.

Drug Therapy: Dependence on Alcohol

Drugs used in the treatment of alcohol dependence include those which produce a toxic reaction when combined with alcohol, i.e. the "protective" drugs, disulfiram and citrated calcium carbamide.

Inhibition of the metabolic breakdown of minor tranquillizers by disulfiram: Chronic alcoholic patients frequently receive disulfiram and minor tranquillizers. It has been found that disulfiram inhibits the metabolic breakdown of chlordiazepoxide and diazepam but not oxazepam. These results suggest that because of this inhibition, disulfiram-treated patients should only receive tranquillizers with careful medical supervision and that oxazepam is the drug of choice under these circumstances. It has also been found that disulfiram inhibits many biochemical steps essential for the inactivation of all drugs and therefore it should be anticipated to enhance the toxicity of many other drugs.

Citrated calcium carbamide-ethanol interaction: A study is being conducted to determine:

1. if acetaldehyde levels in blood following ethanol ingestion are elevated in humans pre-treated with calcium carbamide compared with the same subjects given only ethanol;

2. if the magnitude of the increase of acetaldehyde levels depends on the time interval between calcium carbamide pre-treatment and ethanol ingestion;

3. if there is a relationship between ethanol dose and acetaldehyde levels in humans pre-treated with calcium carbamide.

Model/Experimental Treatment Systems

Studies of treatments and treatment systems, which have included extensive research by the Foundation, have clearly indicated the need to develop effective systems and methods for the care of individuals adversely affected by their use of alcohol and other psychoactive drugs. It has been uniformly found that treatment services are fragmentary, redundant, maldistributed, and of unknown effectiveness. The Foundation's objective in this area has been to bring to a conclusion its studies in the general area of treatment evaluation in the knowledge that further work of this type is unlikely to produce important new knowledge. It will focus future efforts on the development and testing of models for the delivery of treatment services; within these systems the intention is to experiment with the matching of patient/client needs and characteristics with specific interventions. This approach is reflected in the Foundation's Core-Shell, May Street, Halton, and Kingston projects.

Core-Shell Project: In developing the Core-Shell concept it was concluded that existing conditions of service delivery had resulted in too heavy an emphasis upon highly technical, complex interventions requiring large numbers of extensively trained personnel (secondary care). They had largely failed to provide basic case management and continuity of involvement (primary care). Thus a model was developed in which all clients seeking assistance would be immediately provided with primary care. The provision of secondary care would be contingent upon prior meticulous assessment of each client's specific needs and capabilities.

Based upon such an assessment, each client would then be assigned to a program or programs which he theoretically could successfully utilize, and which

would be most likely to meet his particular needs. Such matching would be facilitated and modified in the light of results of an ongoing research program, structured as an integral part of the treatment system, and designed to discover which kinds of clients had done well in which kinds of programs. As well, the overall effectiveness of the treatment system as a whole would be explored. Modern techniques of automated data processing would make feasible the handling of such large quantities of data and its feedback into the clinical operations of the system.

Because the functions of primary care, assessment, and research are to be applied to every client, they would be grouped together at the heart of the system into a large single program called the Core Program. Surrounding this core would be a shell of various treatment programs, to which access would be limited and made contingent upon the findings in assessment. Thus the model has been termed the Core-Shell Treatment System.

Having developed the theory, the Core-Shell model was then subjected to pilot testing. In Phase I of the pilot test, 245 clients of the Foundation were seen in late 1976 in small scale versions of primary care and assessment. The results indicated that primary care was both feasible and attractive to clients and staff, and that most clients accepted the notion of assessment and were capable of completing an assessment battery. Accordingly, a considerably expanded pilot test was mounted during 1977 which consisted of a miniature version of the entire model. Over a 10-week period, 203 clients were cared for by the mini-system. The results again underscored both the feasibility and desirability of the proposed model. Although a prolonged assessment process had been interposed between contact and treatment, much less in the way of attrition was experienced than had formerly been the case. A significantly greater proportion of clients ended up in treatment programs which were probably better suited to their needs. In addition, there was a quantum increment in the quality and quantity of data available on every client for treatment, research, and management purposes. In a word, the results of the pilot tests to date have been strongly positive.

Further exploration of the Core-Shell System as a model for service delivery is now underway. Consideration is being given to an expansion of the model to encompass the current level of client intake into the Clinical Institute. Because of the large amount of data gathered on every aspect of service delivery, it has been possible to develop a computer simulation of the entire system which will be of great utility in planning. Because of the general appeal of the model, it has already proven possible to integrate populations of clients not hitherto dealt with into the services of the Clinical Institute. Because it performs an array of essential services, the system has already been viewed as considerably facilitating ongoing research efforts. A number of treatment research projects is planned, contingent upon further development and expansion of the system.

May Street Project: This treatment research project has as its client focus the employed alcoholic referred from industry because of work problems related to alcohol use. During the past year the project has been concerned with analyzing data in a number of areas. This represents the first relatively comprehensive look at various aspects of the treatment research program. Questions addressed include the following:

1. changes in drinking behavior, employment status, work effectiveness, and various other life areas for clients three months, six months, and one year after admission, with job and drinking status to two years;

2. a comparison between clients offered the entire in-patient and follow-up program at May Street with those clients receiving their in-patient program at May Street and follow-up care from other agencies;

3. a phenomenological approach to various differences throughout the year between clients who at the end of the year were highly successful vis-à-vis their drinking behavior and those who were unimproved at year's end;

4. a comparison of the effectiveness and costs of the day care and residential treatment programs;

5. a preliminary exploration of the efficacy of mandatory supervised disulfiram as an adjunct to treatment;

6. the effects of various forms of coercion such as employment, spouse, children, and self-respect on treatment outcome;

7. an investigation of the role played by individual treatment techniques within the May Street Treatment Program in order to determine both the effectiveness of the specific interventions as well as to test the assumptions underlying the treatment approach;

8. a pre and post-treatment comparison of the single and married client populations.

Generally speaking, the activities of the past year have provided a relatively extensive empirical base from which to proceed with further treatment research activities of 8 May Street.

Halton Treatment Services Network: The objective of this project is to develop and test the effectiveness of a regional services network which would coordinate and integrate services offered by existing social and health care agencies. The network would also serve to identify gaps in service in order to provide a comprehensive care system for the alcohol and drug dependent population of Halton Region. The project transposes the principles of the Core-Shell Model to a community setting. This region was defined as a suitable focus for a high priority project requiring multiple strategies because of its previous ineffective, short-term, isolated, and limited approach to treatment.

The project was initiated by the Foundation six years ago at a time when there was an absence in that region of any social and health treatment services or systematic service coordination policies for alcohol and drug dependent persons, their families, employers, or others who were significantly affected. Prior to Foundation involvement, services were non-existent. This resulted in "hit or miss" referrals to agencies and treatment services outside the region and little or no follow-up.

Kingston Project: Utilizing Kingston as a natural laboratory, a model has been developed for the delivery of services to people with alcohol-related problems living within a small urban setting. The system includes a centralized Assessment and Referral Centre.

Bon Accord Project: This project located in a rural, residential workshop setting, has had as its objective the determination of methods which will help alcoholic skid row men with their drinking behavior and social skills. The major research project during the past year was concerned with the completion of a nine-month study designed to systematically monitor and assess residents' progress within a well-defined framework of rehabilitation and program activities.

A detailed description of one major feature of this investigation, the Behavior Review Group System, has already been reported and a further analysis and reporting of the findings of this and other related research concerned with matters such as work porgram, intelligence tests, brain damage tests, and vocational rehabilitation is proceeding.

In a particular study of controlled drinking it was found that no men were continuously intoxicated while drinking in the Bon Accord environment. This is in contrast to their usual state of more or less continual intoxication while living on skid row. Despite this difference, while in the Bon Accord environment many men had their drinking privileges withdrawn because of drinking problems and only about one in five drank in an acceptable, non-harmful manner.

Spadina Project: The Spadina Project is located in an experimental halfway house. The main objective of the project has been to develop and assess specific programs that could be used in other halfway houses or residential treatment settings. Programs were designed to teach residents self-help strategies for goal planning and coping with problems of daily living, including drinking behaviors.

Final assessment of the program must await completion of ongoing follow-up data collection at six, 12, and 18-month periods following the residents' discharge from the house. Findings from six and 12-month outcome data thus far indicate modest but demonstrable improvements in drinking behavior, social anxiety, assertiveness, communication, and satisfaction with leisure and living accommodation. Finally, strategies developed in the project have been valuable in designing a future project on controlled drinking.

A Behavioral Management System for Youthful Drug "Abusers": In-patient programs for the treatment of multiple "drug abusers" can carry out non-medical treatment effectively only in a milieu that is comparatively free from problems of behavioral management. In this project a management system, based on group-contingent reinforcement, has been developed in order to promote an environment in which therapeutic efforts can proceed unimpaired by extraneous behavioral problems. In this system, the entire patient group receives points that may be exchanged for some privileges contingent upon inhibiting undesirable behaviors (e.g. violence and illicit drug use) and emitting desired behaviors (e.g. punctual attendance at group therapy). To date, it has been shown that implementation of this system substantially suppresses management problems, increases voluntary duration in treatment, and is readily accepted by both patients and ward staff. Future investigations will focus on studying the extent

to which the group contingency system directly induces therapeutic benefits as well as simply creating an environment which appears to be conducive to such benefits.

Monteith Project: This project was concerned with determining whether male prison inmates with a history of alcohol abuse would benefit from specialized group therapy while they were in prison. The results of the study showed no differences with regard to either future drinking problems or offenses against the law in those who received group therapy compared with those who did not.

Attrition in Treatment Programs

Referral Project: A major concern with regard to treatment is the high incidence of clients who fail to keep their first appointment after making arrangements to seek help. It presents a dilemma because of the potential waste of clinical resources and because of the possible negative impact on the clients involved. The referral study is a preliminary exploration dealing with this problem.

Previous evidence and theory have linked the problem with such factors as the characteristics of the client group, the nature of the organizational structures of the agencies serving the target group, and the inadequate linkages existing between such organizations. Consequently, an exploration was conducted of these factors and their impact on the referral process. Estimates were made of the nature of the organizational structures of the referral sources (i.e. large formalistic bureaucracies or small, human relations type organizations). The characteristics of the populations served were examined as were the linkage mechanisms existing between the organizations involved (i.e. how they communicate with one another in relation to a referral). Such factors are being correlated with the outcome of the referral process.

"Client Drop-Out Related to Outcome" Project: A one-year follow-up study is being conducted which will record the reasons that clients waiting for treatment give for their failure to enter treatment. This study will compare the future behavior of these clients with those who completed treatment.

Role Induction Study: Another major treatment concern is the high "drop out" rate of patients after they have entered treatment. The objective of the role induction study is to further investigate this phenomenon and determine whether methods can be developed which will retain clients in therapy for longer periods. It was hypothesized that the lack of agreement between the treatment expectations of therapist and client may account for a high rate of discontinuance in a treatment setting. Further, it was hypothesized that exposing clients to role induction interviews before they were assigned to specific treatment programs might help to reduce the degree of discrepancy between the objectives of an organization and its clientele and thereby lower the attrition rate. Consequently, three different modalities of role induction were instituted in the Out-patient Program of the Clinical Institute, namely one group led by an ex-patient, another led by a therapist, and a third group where patients viewed a video tape of an orientation group. This project is now in the phase of data analysis.

Public education and information programs are designed to heighten public awareness of alcohol and other drug effects. During 1976-77, 1,400 individuals visited ARF's head office and requests for information and for information formats developed by the Foundation come from virtually all parts of the world.

EDUCATION

Education in the Foundation may be grouped into two major categories: *public education and information* and *training and development*, which may be further broken down into sub-components. Education programs are directed toward Foundation staff, other professionals and workers in the community, and the general public. Education components are found throughout the Foundation's divisions and activities include the production of print and audio visual materials, resources for storing, retrieving, and disseminating information, and training and development of health care professionals both in a university setting and in a work environment.

PUBLIC EDUCATION AND INFORMATION

Public education and information programs are designed to heighten public awareness of alcohol and other drug effects and to provide an improved data base regarding other issues in the field. Scientific knowledge developed through research in the Foundation and elsewhere provides the information base for such programs. Requests for information and information formats developed by the Foundation come from virtually all parts of the world. Information is disseminated in a variety of formats, including print and audio, visual, and personal exchanges through programs located centrally and through ARF offices located throughout the province.

Publications

The Foundation's book publishing program seeks to provide significant information concerning the alcohol/drug field through the publication of quality books. There are now 49 titles in print. Books are grouped into categories: original works, based on or related to systematic investigations; proceedings of scientific meetings sponsored by the Foundation; and bibliographies. The following titles were published between April, 1976 and March, 1977.

Women: Their Use of Alcohol and Other Legal Drugs

Catalyst in the Community

Women and Psychoactive Drug Use: An Interim Annotated Bibliography

The Treatment of Alcoholism: Theory, Practice, and Evaluation, Second Edition

Report on the Operation and Effectiveness of the Ontario Detoxication System

La Femme et L'usage des Drogues Psychoactive: Une Bibliographie Provisoire Annotée

Therapeutic Communities for the Management of Addictions: A Critically Annotated Bibliography

The Journal is a monthly newspaper reporting current international developments in research, treatment, education, law enforcement, and policy relative to the addictions field. Using correspondents—qualified science writers located in major world centres—*The Journal* provides a reporting scope unique to the field. The newspaper is received by 10,000 people each month and subscription fees for circulation outside Ontario provide revenue offsetting costs for circulation within the province.

Addictions is a quarterly magazine received by 10,000 people in Canada, the U.S., and abroad. It provides a forum for the discussion of issues of interest to helping professionals, personnel of social and community agencies, and others concerned with alcohol and other drug phenomena. While articles are presented in a popular format, references are available on request.

A variety of print formats is utilized to keep interested persons abreast of new developments. One format example is *Projections*, a monthly review service assessing and recommending uses of films and video tapes. The review is conducted by the Foundation's Audio Visual Assessment Group which is comprised of representatives from all Foundation divisions. Another example is the quarterly report, *ARF Street Drug Notes*, sent to all hospitals and a number of treatment centres in Ontario. Developed by Pharmacy and Pharmaceutical Sciences, it provides up-to-date information about street drugs in current usage.

During 1976, Foundation staff published 125 articles in scholarly journals. Senior Foundation staff edit the series *Research Advances in Alcohol and Drug Problems*. Volume III was published in 1976.

Public information pamphlets are developed to provide information on specific areas of treatment, such as work with families, and to provide factual information on such drugs as alcohol, opiates, amphetamines, barbiturates, cannabis, LSD, solvents and aerosols, tranquillizers, caffeine, nicotine, hallucinogens, and phencyclidine. There are currently 44 pamphlets in print. In 1976-77, 1.9 million items in this category were distributed for the use of both professional and lay audiences.

A handbook on drug abuse is being prepared by scientists in response to a request from the county court judges of Ontario. A manual for physicians has been developed in conjunction with the Ontario Medical Association. It will be circulated to 13,400 members of the OMA.

Audio and Visual Productions

"Collision Course," a 20-minute dramatization of impaired driving, was named best overall film in the media festival at the annual Biocommunications Conference in Las Vegas, Nevada. Also produced during the year was "Moderation At All Times," an animated film concerning alcohol consumption patterns. It has had considerable television exposure in Ontario.

The Foundation has 26 video tapes and 15 audio tapes available as teaching aids and as vehicles for public education. Video tapes produced in 1976 dealt with such topics as female alcoholics, sports and the use of drugs, and teenage drinking. New audio tapes related to such subjects as out-patient treatment of the adult alcoholic, employee assistance programs, and the controlled drinking controversy.

The Foundation's video productions capabilities have been used by ARF staff and individuals in the community to develop materials to enhance counseling, teaching, and public presentations. Consultation and technical support in the design and production of audio visual materials for educational activities are provided in addition to editing, duplication, playback and related services. These, as well as original materials, are produced for Foundation use and for loan to other organizations.

Information Services

Press releases issued by the Foundation alert the mass media to important research findings and other developments in the alcohol/drug field. Arrangements for media coverage of major conferences and special events provides another channel for the dissemination of significant information. The Foundation takes the initiative in alerting, informing, and involving media representatives; requests are received daily for the appearance of Foundation staff on radio and television and for interviews with press personnel. During 1976-77, topics discussed via mass media by Foundation spokespersons included raising the drinking age, decriminalization of marijuana laws, controlled drinking programs, and the problems associated with drinking and driving.

As part of its information service, the Foundation provides the people of Ontario access to a permanent collection of materials which includes over 8,000 bound volumes, more than 30,000 reprints, approximately 600 periodicals, and an extensive collection of audio and visual materials. Assistance in research and other scholarly activities is provided for a large number of researchers, workers, and students from ARF and other agencies and institutions. During 1976-77 approximately 800 items in print and 200 films were circulated per month. Users are alerted to new and present holdings by means of acquisition lists, tables of content, and computerized science citation alerts. Microfiche (4" x 6") of the full text of cited articles are prepared from indexed and annotated bibliographies. Inter-library loans provide for exchange of items between ARF and other libraries.

Requests from the public for information are numerous. During the year one information service department received an average of 43 letters, 153 telephone calls, and 30 in-person requests per week. In addition, 1,176 packages

of education materials were sent in response to prepared request cards.

Information Reviews are developed in areas of high public interest. Reviews prepared in 1976 concerned solvent and aerosol abuse, drinking and driving, and a summary of statistics related to alcohol and drug use in Ontario. During 1976, the Foundation's internal newsletter *Contact* won first prize in its class in a nationwide competition sponsored by the publication *Hospital Administration in Canada*. Published monthly, *Contact* provides ARF's head office and regional staff with current news on Foundation organization, programs, and personnel.

Public Forums and Visitors

Informaction '76, the 11th annual conference of the Canadian Foundation on Alcohol and Drug Dependencies, was hosted by ARF in association with the CFADD. This event, held in Toronto, attracted 600 people from five countries.

Also, a 10-day annual residential workshop was held for 25 alcohol and drug information personnel from the armed services stationed in Canada and Europe.

During 1976-77, the ARF Lecture/Seminar Series featured programs on organic damage from alcohol/drug use, school age drinking, international perspectives on drug abuse, drinking and driving, and future directions for the Foundation.

Health Research Ontario, a scientific meeting jointly sponsored by the Ministry of Health and the four health foundations in Ontario, involved three Foundation staff members as presentors. As always, a large number of Foundation staff presented papers at major conferences in various parts of the world.

Through a display program, the Foundation also provided educational opportunities at major conferences and to residents of Ontario within their own communities.

During 1976-77, 1,400 individuals visited the Foundation's head office. Visitors, who come from all parts of the world, seek to learn more about the Foundation and its programs and to speak with authorities in various disciplines.

Support of Ontario Ministry Programs

Foundation staff have provided support to the Ministry of Health in its public advertising campaign, to the Attorney General's office in its examination of the relationship of the legal drinking age to the age of majority, and to the Ministry of Industry and Tourism in the development of a seminar for industry concerned with solvent abuse. Three inter-ministerial seminars were convened by the Justice Secretariat with resource support provided by the Foundation.

Distribution of Educational Materials

Educational materials developed by the Foundation are distributed through

a variety of channels including regional offices throughout the province. Some materials are sold outside Ontario to offset the cost of free distribution of materials within the province. During 1976-77 over 2,000,000 items were distributed free or sold, generating revenue in excess of $200,000.

Training occurs at the Foundation's headquarters in Toronto and its regional offices for university students in the health care field, including postgraduate, graduate, undergraduate, and community college students in chemistry, internal medicine, occupational-recreation and physiotherapy, nursing, pharmacy, pharmacology, psychiatry, and social work. As well, programs are set up for community-located personnel such as clergy, police officers, manpower counselors, probation officers, and public assistance counselors.

TRAINING AND DEVELOPMENT

Foundation training and development activities are directed toward ARF staff and other professionals, workers, and students in the health care and related areas. While such programs are primarily directed towards individuals in Ontario, special programs are also arranged for persons from other parts of Canada and the world. The Foundation is recognized by the World Health Organization as one of the world's leading training centres in the alcohol/drug field.

Training occurs at the Foundation's headquarters in Toronto and its regional offices for university students in the health care field, including postgraduate, graduate, undergraduate, and community college students in chemistry, internal medicine, occupational-recreation and physiotherapy, nursing, pharmacy, pharmacology, psychiatry, and social work. Training and development programs are also set up for community-located personnel—clergy, police officers, manpower counselors, probation officers, and public assistance counselors—in certain locations within the province.

Student Training

During the 1976-77 academic year, more than 300 university and community college students came to the Foundation for training related to their academic programs.

Fifty-one medical students received training during the academic year. These included undergraduate clinical clerks as well as postgraduate residents or fellows in gastroenterology, neurology, clinical pharmacology, psychiatry, family practice, and general medicine. The duration of these clerkships, residencies, and fellowships ranged from one month to two years. Foundation medical staff also conducted courses in pharmacology, gastroenterology, psychiatry, general medicine, and neurology at the University of Toronto.

Twenty-five graduate students in social work and 27 community college students in social service and addiction counselor courses were placed in the Foundation during the year. All five first-year students majoring in research at the U. of T.'s Faculty of Social Work were placed in an eight-month field placement.

During the academic year, 65 nurses in training, including 52 students from George Brown College, 10 from Humber College, two post-basic students from McGill University, and one from Ryerson Polytechnical Institute were placed in Foundation programs.

Also during the academic year, 19 students were trained in the areas of occupational-physio and recreation therapy. They included 12 undergraduates in kinesiology and recreation therapy from the University of Waterloo, three graduate occupational therapy interns from Queen's University and the University of Western Ontario, and four undergraduate occupational therapy students from the University of Western Ontario.

In addition to the examples above, placements were provided for students in a variety of other disciplines, including administration, adult counseling, public health, nursing, psychiatry, psychology, and theology.

Affiliation with Other Hospitals

The Clinical Institute has a major liaison with the Toronto Western Hospital. These two institutions have joint divisions of clinical pharmacology, neurology, and gastroenterology.

Teaching in clinical pharmacology for up to one year is provided for medical students, residents or postgraduate physicians, and graduate students in human pharmacology in the two hospitals and at the University of Toronto.

The gastroenterology and neurology programs offer similiar opportunities for postgraduate training.

In addition, four Foundation physicians holding oppointments in general internal medicine at the Toronto Western Hospital are involved in both patient care and teaching at that institution.

Affiliation with Universities and Other Training Institutions

The Foundation maintains formal and informal affiliations with universities and other training institutions across the province. The Clinical Institute is formally affiliated as a teaching hospital within the University of Toronto.

Foundation staff in virtually all disciplines hold academic ranks up to full professor. These cross-appointments permit the maintenance of high academic standards as well as the input of alcohol and drug content into curricula of the institutions. In addition to formal courses, Foundation staff conduct numerous lectures in universities, at conferences, and in other forums. Two courses presented in the Foundation are accepted by the University of Toronto for credit in the curricula of the Faculty of Social Work and the Canadian College of Family Physicians. In collaboration with McMaster University, Foundation staff provide training in addictions management for 12 undergraduate medical students.

During the year, the Foundation initiated a six-hour program of instruction as a compulsory course for 190 new students in the Faculty of Pharmacy, University of Toronto. This program was developed in consultation with the faculty and with the Ontario College of Pharmacy. It will be continued in 1977-78. In 1969, the George Brown College, in association with the Foundation, established a two-year course in addiction counseling. To assist in launching the program, the Foundation provided most of the teaching staff. At present, the Foundation provides support to this program primarily by membership on its advisory board and by providing training placements. In 1976-77, nine students from this program were placed with the Foundation for training.

In collaboration with Sheridan College and Darnell Associates, Foundation staff are engaged in providing an eight-week course on addictions for 35 students in community health and social services. Foundation staff also offered a course in addictions management at Centennial College in Toronto. As well, they, in association with the Clarke Institute of Psychiatry, organized a workshop to increase psychiatry students' knowledge about drug dependence phenomena.

Since 1965, the Foundation has offered fellowships for graduate training in research in fields dealing with problems associated with alcohol and other drug use. During 1976-77, 12 scholarships were awarded, six of these being renewals to students located in five universities. Since 1965, the Foundation has also awarded 75 fellowships and scholarships for graduate training in research. These awards have stimulated a number of research projects and have created a sustained interest in the alcohol/drug field. Seven recipients currently are employed in research positions within the Foundation.

Volunteer Training

In St. Catharines, Foundation staff contributed to the training of 150 volunteers to work in human service agencies.

During 1976-77, 18 students functioned as volunteers within the Clinical Institute. In some cases, these students were required to become involved in community (e.g. volunteer) work as a prerequisite to taking certain courses.

Training of Professionals and Other Workers

A training project was conducted for Emergency Department staff in the areas of medical care and management of intoxicated patients. The program was developed as a model for application elsewhere. In association with the Emergency Nurses Association of Ontario ARF staff conducted a workshop for Emergency Department nurses. ARF staff will proceed with training workshops for 184 Emergency Department nurses located in six Toronto hospitals.

In addition to student placements, 25 public health nurses, 10 Children's Aid counselors, and 65 professionals working in the health and social welfare fields were engaged in various addiction training programs.

The Foundation held a series of five-day training workshops for staff of Ontario's 13 detoxication units, 18 recovery homes, and other related service

agencies. This year, participants included 60 staff of detoxication units, 11 employees of recovery homes, and seven Salvation Army and Missions staff.

The Foundation was engaged in developing alcohol education programs which are to become an on-going part of in-service training programs for nurses at Queensway-Carleton Hospital, Ottawa Civic Hospital, St. Annes Community Clinic, and North Bay Psychiatric Hospital.

Foundation staff contributed to training programs for police cadets at the Provincial Police College in Aylmer and the Metropolitan Police College in Toronto. The Foundation also provided a training program for the Glendale Adult Training Centre.

A program to incorporate alcohol and drug content into elementary and secondary school curricula was developed by Foundation people and is now underway in various parts of the province. In Toronto, a curriculum project with the Board of Education has resulted in instructional guides for teachers of Grades 7-10. Information pamphlets are currently being developed for use at the Grades 5 and 6 level.

Education System Task Force

This task force was established to optimize the coordination, planning, and evaluation of educational activities related to education systems. It's major achievements were a) the development of a model for ARF intervention in drug education in Ontario elementary school systems, b) the development of a proposal to compare a "popular living skills" drug education program with more traditional approaches, and c) the development of a draft position paper on addictions management training of professionals in various Ontario education systems.

Hazardous users of ethanol and other psychoactive substances who suffer from a variety of physical diseases which are either complications of their drug use or are associated consequences of their lifestyle are treated at the Foundation's Clinical Institute, an 80-bed hospital with an inter-disciplinary staff and facilities for emergency, outpatient, and inpatient care.

COMMUNITY DEVELOPMENT

Foundation knowledge, experience, and resources are channeled into the communities of Ontario to aid them, through their own service systems, in becoming self-sufficient in the management and prevention of alcohol and other drug abuse problems.

While the Foundation assists in the development of independent facilities when required, its primary approach has been to work with existing organizations such as hospitals, businesses, and schools to persuade them that concern for alcohol and other drug problems should be a part of their overall mandate. ARF community consultants provide advice, on request, to individuals or groups; bring together groups of citizens to consider particular problems; educate, or provide the means for self-education, by way of Foundation material and films; and carry out an on-going assessment of the adequacy of local alcohol and drug programs.

Community development activities carried out under Foundation auspices during the past year fall into seven main areas: 1. *alcoholism in the workplace*--the Foundation assists employers and unions in developing policies and supervisory training programs to deal with problems of alcoholism in the workplace; 2) *community mobilization and coordination of treatment services*--communities are assisted in the development of mechanisms whereby existing alcohol and drug services can work in a coordinated fashion and can be assisted in initiating action to develop new services where these are clearly needed; 3) *manpower development*--programs are carried out to educate and train professional workers such as social service agency and public health personnel, police, native workers, and, particularly, personnel working in the agencies which treat only alcoholics; 4) *drinking/driving projects*--the Foundation assists communities wishing to intervene in the drinking/driving problem and encourages constructive thinking about program options which take into account research findings; 5) *the management of the chronic public inebriate*--assistance is provided to services established to deal with the chronic drunkenness offender to help them manage their clients effectively and to ensure collaboration with other services; 6) *alcohol and drug-related problems amongst young people*--school boards wishing to develop curriculum materials and teacher training programs in relation to alcohol and drug education for young people are assisted upon request; 7) *public education and information*--Foundation staff are available to the community to provide materials and advice on request.

Alcoholism in the Workplace

In every area of the province, ARF consultants have been initiating contact with industry; so far, 348 Ontario companies have been provided with consultation, staff training, and assistance in developing alcoholism policies for their employees. The ARF has also worked extensively with labor organizations. Furthermore, efforts have been made to develop additional treatment services for the employed alcoholic.

In the London area, six industries, in consultation with ARF, have established an out-patient treatment service for their employees. Facilities have been obtained and financial support is provided by the companies. A London staff member is director for this service for the first two years. Besides treatment, the project provides consultation and educational services to the industries. The experience gained from this project may lead to similar developments in other locations.

A Kent County industrial advisory group, working closely with the District Health Council, has a mandate to establish adequate care programs for alcohol and drug dependent workers. The Foundation assists this group to ensure that it is constantly up-to-date regarding recommended approaches to the problem. In the Etobicoke and Peel areas, major surveys of local industries have been undertaken to determine the level of knowledge and interest in developing alcoholism programs. Program plans will be drawn up to focus on those industries which show the greatest interest or have the greatest number of problems.

Throughout the province, industries have made substantial gains in developing policies and supervisory training programs. ARF consultants have helped develop specific training programs, as well as provided materials to help management and unions identify those elements which constitute a successful program. Uniroyal, Mutual Life, B.F. Gooderich, Stelco, and Union Carbide Ltd. are but five examples of more than 35 industries where programs have been implemented.

Input '77, an industrial alcoholism conference, was held early in 1977 in Ottawa and attracted 150 managers, union personnel, and others involved in this area. The conference was sponsored by Humber College in consultation with the Addiction Research Foundation.

A number of colleges has made commitments to carry out programs regarding alcoholism in industry as part of their management or extension courses. Agreement has been reached with the Ministry of Colleges and Universities to have a one-day seminar on alcoholism and the workplace listed by every college of Applied Arts and Technology. The Foundation has agreed to play a key role in the planning of program content. Colleges which have had courses on alcoholism in the workplace over the past year, in collaboration with ARF consultants, include: Sheridan, Humber, St. Lawrence, Niagara, and Mohawk.

Community Mobilization and Coordination of Treatment Services

Throughout the province, efforts are being directed at coordinating existing alcoholism and drug services and at mobilizing new services if these are required. Activities are approached in a different fashion from community to community, and during the past year, 42 distinct projects were underway. These included projects to develop new treatment services; to develop directories of existing treatment services; to coordinate existing services in 12 locations; to survey alcohol problems in seven locations; to provide ongoing support and consultative services; and to make efforts to curtail ARF treatment services by encouraging other services to provide alcohol and drug treatment programs. In this latter task, the diversity of community needs has led Foundation consultants in a variety of directions. For example, in Toronto, ARF is encouraging service development within the Italian community. In Ottawa, the community is looking particularly at the needs of women. And in Noelville, near Sudbury, ARF has assisted the community to develop plans for a "service centre" to deal with alcohol and drug problems.

In order to improve and coordinate treatment resources for alcoholics and their families in six southern townships of Simcoe County, the Foundation has been involved in securing inter-agency coordination of family services; ensuring earlier identification and treatment of abused or neglected children; establishing a central information service which includes material on alcohol and drug abuse; and establishing a local volunteer group to act as a focus for agency support.

The Grey-Bruce Halfway House Project is aimed at preparing the recovering alcoholic for re-entry into society. The Foundation has provided leadership in the design and implementation of this project, as well as helping to secure the facilities. Financed by a L.I.P. grant, the program has offered an alternative for the aftercare of alcoholic patients discharged from the MacKinnon Phillips Problem Drinkers Program.

In the Sault Ste. Marie area, ARF has organized, consulted with, and guided a community committee of judges, lawyers, and doctors who were interested in establishing a detox centre and a halfway house facility. The halfway house is currently operational and the detox centre is about to open. The Foundation will continue to play consultative, training, and evaluation roles. Approximately 500 copies of a directory of alcohol treatment agencies in the Thunder Bay area, intended to update the existing knowledge of those employed in the treatment field, were distributed during 1976-77.

A long-term residential home for disabled alcoholics has been established through ARF initiative in Duart. A worker has been assigned by the Ministry of Community and Social Services to work with these men. This program is being treated as a potential model for serving the most deteriorated alcoholic population in a cost effective way.

The control and administration of Turning Point, a 24-hour crisis intervention centre located in Windsor, is being transferred from the ARF to a community-based advisory board. Using the services of volunteers in addition to paid staff, this program handled 6,877 personal contacts during 1976, including many with alcohol and other drug-related problems.

An ARF consultant in Belleville initiated the one-day-a-week alcohol clinic in the community of Bancroft. Using existing resource people, for example, public health nurses, social workers, and doctors in the community, as well as the available facilities, a service was set up and has been operating for two years. Volunteers are being trained to assist in the project. The consultant makes regular bi-monthly visits to the community to consult with those carrying out the program itself and to train the volunteers. This program may serve as a model for establishing similar alcohol treatment services in smaller communities.

After the Foundation mobilized the community of Belleville, Serenity House, a recovery home for 15-18 male and female alcoholics, was opened. Permanent funding for this facility is now being sought. The ARF played an active role in its establishment and is currently engaged in a consultative role with the staff and board, regarding management and program continuation.

ARF staff assisted with the development of a proposal for funding by the Ministry of Correctional Services to found Otherways, Inc., a preventative program for alcohol and drug-involved juvenile delinquents. The grant has been approved, office space and staff have been secured, 49 volunteers have been trained to work with young people, and a research proposal to gain information about adolescents passing through the court system has commenced. Foundation people are also assisting the board and staff in developing an appropriate management style.

ARF staff have been successful in transferring direct treatment responsibilities for the treatment of addictions to the Cornwall General Hospital and also in linking these programs to the community service system in that city. ARF has also initiated the process of linking local employers to the treatment team. The addiction program description is to be included in the hospital's accreditation submission, and the Foundation will continue to assist the hospital in a supportive and consultative role.

An ARF staff member is chairman of the Dependence Subcommittee of the Wellington County District Health Council. Currently, this subcommittee is engaged in preparing an inventory of treatment and preventive education programs available in the county. This process will identify gaps in service which will enable priorities for new programs to be submitted to the Ministry of Health. The subcommittee has identified the need for an orientation program for new staff of the Guelph area alcoholism services, and ARF will direct the program in consultation with a variety of community agencies.

ARF staff are consulting in the organization and research components of the Alcoholism and Drug Addictions Project (ADAPT), an independent community-based assessment and referral service for Halton Region. This project will involve all relevant community health and social service agencies. A Board of Directors and Professional Advisory Board have been established and funding strategies are being employed. An ARF substudy outlines the program, which is intended to demonstrate that different community resources may be successfully mobilized to serve in the treatment and rehabilitation of the chemically dependent person. This program, which includes a research component, is considered potentially transferrable to other areas.

A new framework has been established by the ARF Board for involvement of citizens in local alcohol and drug policy. Strong encouragement is being given to District Health Councils to develop subcommittees on dependencies. Those committees which will continue to be affiliated with ARF will focus their attention on local community needs and problems.

Manpower Development

Foundation activities in the area of manpower development in the community involve a wide range of training programs. These include training of physicians, nurses, social workers, student social workers, law enforcement and correctional personnel, and volunteers in various aspects of the alcohol and drug field. Some are intensive programs where students are involved for up to eight months in training and learning practical skills. Others consist of a series of weekly half, full day, or evening sessions. Objectives for each program vary depending on its purpose and the needs of the participants. Some examples of the types of programs and accomplishments of the past year follow.

Training is provided to five native counselors working on reserves near Kenora. The training consists of regular day-long educational sessions in which the alcohol problems are fully outlined, various intervention methods presented, community resources identified, and full opportunity for discussion and questions taken into account.

In Cornwall, a project has been designed to provide adequate opportunities for training of recovery home boards and staff in order to establish consistency in recovery homes, to improve goal setting for residents, and to ensure the appropriate use of resources. ARF staff assisted in setting up the training workshop for recovery home staff and board members in Eastern Ontario and will continue to conduct training programs.

Another project has been established for the training of all juvenile probation/aftercare workers in Ottawa with respect to addictions and to mobilize this group to lend support and leadership to the development of a residential program for youth in conflict with the law. To date, a training plan has been developed and the program has been implemented. This program has stimulated community action to develop a residential facility for youth.

In Brantford, the ARF carried out educational seminars for student nurses at St. Joseph's Hospital in order to increase their competence in helping drug dependent patients. Included in the program are discussions aimed at changing attitudes and behavior of the health care professional toward those with dependency problems. The same program is also being tested at Mohawk College School of Nursing.

Demonstration workshops on the use of various techniques for aiding recovery from addiction problems (e.g. Antabuse, communication skills, etc.) were presented for the staff of the Homewood Sanitarium in Guelph. Four ARF workshops have become permanent components of the Homewood program.

In Hamilton, a course is offered to post-graduate nurses in clinical settings in order to enable them to assume an expanded health care role, including the

management and treatment of alcohol and other drug patients. The course involves classroom lectures and a practicum.

In Simcoe, the Foundation was invited to train the staff of the Glendale Adult Training Centre for young incarcerated males with alcohol or drug misuse histories. The purpose is to assist staff in the development of their skills in group work and to provide consultation with respect to available educational resources in the addictions field.

A series of 45-minute presentations are made to all officers in advanced-in-service training at the Metro Toronto Police College. The objective is to assist the police in managing drug and alcohol acting-out behavior in clients. Information on the Foundation, effects of drugs, and the appropriate use of community resources is given and information kits are distributed. An evaluation instrument is administered and a three-month follow-up is conducted. Information on the project has been recorded in an ARF substudy.

The Foundation is involved in providing demonstration treatment programs for alcohol and drug-related cases at Doctor's Hospital. A monitoring system has been developed and will be administered by the hospital staff to all patients who are in contact with the social services department. Educational programs dealing with alcohol and other drugs are being provided to hospital staff. It is hoped that a six-month evaluation will provide the information on which to plan specialized services for a majority of the clientele of this hospital who are of Italian and Portuguese descent.

At the request of Peel Manor, a home for the aged in Mississauga, an ARF staff member has been conducting a program to assist staff in managing alcohol problems among residents. The home has altered both its program and some of its operating policies and procedures in order to attend to the needs of alcohol dependent residents.

At the Foundation's Northeast Branch (which covers Scarborough and North York) an extensive training program for students and various health and social workers is carried out. Since January, 1968, the branch has trained at least 500 individuals of this program. The objective is to train about 180 persons per year in addictions management.

Drinking and Driving Projects

Changes in the law relating to driving-while-impaired (DWI), along with an increasing public consciousness of this problem, have led to a number of program initiatives aimed at the drinking driver and at the general community.

Community workers have cooperated with researchers by developing programs which can be readily evaluated; Belleville, North Bay, Kitchener, Etobicoke, and Oshawa all have programs of this type. In four of these programs, the courts are referring offenders to specially organized treatment programs. The fifth program (Etobicoke) requires cooperation from the police and local media. Efforts have been made in Ottawa and Brantford to develop materials for use in driver education courses. Collaboration has been ongoing with Transport Canada regarding projects to evaluate Canada's new legislation on impaired driving.

Foundation staff in the North Bay area are continuing to participate in the teaching and evaluation of a program for all second offenders in the DWI program. The purposes of the program are to reduce recidivism, to demonstrate more appropriate court disposition of these cases, and to decrease the cost in relation to incarceration. The program, which consists of 11 weekly sessions, is evaluated by means of attitude and behavior testing. Preliminary results have been published as an ARF substudy.

The purpose of the Ottawa project is to provide primary prevention by using driver education programs to disseminate information and promote attitude examination. A drinking/driving manual has been produced and will be evaluated to determine the extent of use by driver education instructors.

A nine-day session is provided for an average of 25 participants randomly selected from DWI offenders referred by the courts in the Oshawa area. The program is currently in its ninth series. An evaluation component utilizes an experimental and control group design and an interim report will indicate to what extent different types of drinkers profit from the course.

A five-member Expert Committee on Highway Safety from the Foundation delivered a report to the province's Select Committee on Highway Safety in January 1977.

Its recommendations were:

1. more roadside alcohol testing be done in Ontario;

2. people's subjective probability of getting caught for impaired driving be increased;

3. large scale education programs not be encouraged;

4. "curative treatment" and educational programs for impaired drivers not be done on a large scale;

5. ARF develop a small scale research study on the usefulness of alcoholism treatment for impaired problem drinkers.

The Management of the Chronic Public Inebriate

Management of the chronic public inebriate continues to be a major problem, even though more halfway houses and detox centres are now available to deal with this population. The Foundation provides training programs for the staffs of detox centres and halfway houses across the province. Seventy-eight staff of detox and halfway houses attended a week-long program, and during the year there were five such programs. Foundation specialists in detox and halfway house work made 96 visits to consult with various staffs of the facilities in this network.

In Toronto, ARF continues to work with Seaton House in the establishment of a strong residents' committee to develop rehabilitation programs for

alcoholics. Weekly discussion groups have been organized and evening recreational programs have been instituted. At Woodgreen Community Centre, ARF staff are attempting to improve community services for the "pre-skid row" population by developing an adult drop-in social program. A joint agency management committee has been formed and the program's viability is being assessed with respect to staff and referral.

In 1975 the Foundation was approached by Chatham's Community Social Services to serve as trustee for five persons with alcohol problems. By administering their finances (all were welfare recipients) i.e. paying off their room and board costs and controlling the money each client received every week, Foundation staff subsequently encountered fewer alcohol-related problems with these clients. This model is considered as an alternative approach in managing the chronic alcoholic. The program has 20 participants at present.

Alcohol and Drug-Related Problems Amongst Young People

Various school boards throughout the province cooperated with the Foundation to test education models in individual high schools, to develop teacher training programs, and to mobilize community interest. In all, there were 12 such projects. One project, in Orillia's Regent Park Community School, involved contacting students using alcohol or other drugs, training teachers to identify behavior problems associated with these young people, and establishing education programs aimed at parents. The project has produced a citizen-based group which will be responsible for programming. Foundation involvement will be reduced to a consultative role. Programs are now being developed to deal with families who are experiencing alcohol and other drug problems.

An educational program has been developed for Grades 8-10 of the Brant County Public School system in order to help these students gain an awareness and knowledge of the factors involved in progressive dependence on alcohol. The four-segment program is being evaluated for possible inclusion in the school system's new health curriculum.

A training program has been developed and an evaluation planned for a project to increase the level of awareness of the coordinators for Youth Centres (Department Parks and Recreation), of the Borough of York with respect to the abuse of solvents and other 'street' drugs; the intent is to make them more competent in identifying, understanding, and helping drug-hurt youth.

In Oakville, the Foundation is involved in training 20 elementary and high school teachers and promoting the development of an effective and consistent drug and alcohol curriculum for students within the Halton Public School system. A committee of the Board of Education has been formed to review current policy and to write new core material.

Public Education and Information

Through its community development programs, ARF has worked with a number of organizations concerned with various aspects of alcohol and drug

problems. For example, assistance has been sought by the Catholic Women's League to train volunteer speakers for "Operation Aware," a program focusing on alcohol and the family. Similarly, assistance has been provided to the federal government's "Dialogue on Drinking" program by answering requests by individuals and community groups for information on alcohol. Most community consultants maintain contact on an ongoing basis with their communities by being involved in social action groups and service clubs.

A project has been launched to mobilize a group of community leaders within Oxford County; the purpose is to improve the community's awareness of the adverse consequences of alcohol consumption and to point out the need for improved social control of alcohol consumption. A further objective is to improve resources, services, decision making, cooperation, and collaboration in various community systems to facilitate the detection, management, and reduction of alcohol problems. Thus far, a coalition of key community persons has been established and a questionnaire administered to measure opinions of the target community and a control community. A problem-solving approach will be used to help the group and to implement strategies to promote public awareness.

In Sault Ste. Marie, ARF has been successful in securing prime radio time for five minutes daily to present information on alcohol. The objectives are to inform and educate the general public, on a daily basis, with regard to emotional, physical, and social damage caused by the overuse of alcohol. The idea is to instill in the younger population, a healthier attitude towards the use of alcohol and its possible consequences. The radio station is providing feedback from its listeners and other evaluation plans are being considered.

In Niagara Falls, the Foundation is ensuring schools have current reference material on chemical dependency. The school nurse is included in the ARF visit to guidance and health teachers to encourage school officials to view the public health nurse as a resource person for alcohol and drug dependence issues.

In the Toronto area, a Foundation physician made presentations to the Subcommittee on Alcoholism and the Elderly, set up by the Ontario Government Advisory Council on Senior Citizens. A second program is aimed at the alcoholic residents in Castleview-Wychwood Towers, a home for the aged; this program seeks to reduce drinking and increase activities and interests among the residents. The outcome to date has been a significant reduction of alcoholism problems in the experimental groups. Duplication of the program with a second group is planned.

Television and radio programs in the Italian language, relating to alcohol and other drugs, have received favorable feedback from Toronto area residents. As well, articles have been prepared for and published in the Italian language media. A Foundation staff member has been acting as chairman of the Health Social Services Committee of the Federated Association of Italian Canadian Clubs (FACI) and plans are being developed to hold a conference for professionals working with the Italian-speaking population.

High among the priorities of the Foundation is work concerned with the cause and prevention of harmful consumption of alcohol. Demand for treatment services has risen steadily and the search continues for the best that can be offered at a cost that can be afforded.

TREATMENT OF THE ALCOHOLIC

Although society is confronted by a host of problems associated with the use and abuse of a wide variety of drugs, the biggest problem, by any measure, is the damage caused by harmful consumption of alcohol. In Western society harmful consumption always has been the major drug problem but its dimension has been growing alarmingly. The number of alcoholics in Ontario per 100,000 adult population was about 2,400 in 1963. By 1973 the number had swelled to about 4,200. Deaths from cirrhosis have increased by some 33% in the past 10 years. And alcohol is involved in 50% of driver fatalities.

Damage from alcohol consumption is closely correlated with average per capita consumption: when per capita consumption increases the number of heavy drinkers rises proportionately, inevitably followed by more health and social damage, family breakdowns, accidents, and deaths. This relationship is striking in the case of liver cirrhosis where cause and effect are relatively uncontaminated by the influence of other factors. In Ontario, cirrhosis of the liver, which in 1955 was the sixth leading cause of death among males and females between 45 and 54, has risen in recent years to fifth place. These deaths are related directly to per capita consumption of alcohol several years earlier. Thus if per capita consumption rises it is followed automatically by an increase in the death rate from cirrhosis. Per capita consumption has been rising rapidly. In Ontario it was 1.86 gallons of absolute alcohol per year in 1963 and 2.32 gallons per year in 1973. Given current societal attitudes and behavior, and present policies on the distribution and sale of alcohol, it is predictable that alcohol consumption will continue to rise and will be accompanied by a greater and even more frightening impact on the casualty list.

High among the priorities of the Foundation is work concerned with the cause, prevention, and treatment of harmful consumption of alcohol. Work related to cause includes biochemical studies of the effects of alcohol, investigations of the phenomena of tolerance and dependence, and behavioral studies of the heavy drinker. Studies concerned with prevention have included profoundly important epidemiological investigations in which the Foundation has been a world leader. These studies have disclosed and confirmed the relationship between average consumption and the numbers of heavy drinkers, referred to above, and have pointed the way to control policies which, in the longer run, can

stem or even reverse the rising tide of damage. Additional work concerned with prevention is directed at changing societal behavior through the use of electronic media and other educational tools. The prospects for impact of such preventative efforts are not promising in the short run for a variety of reasons but their long-term significance may be crucial to setting effective control policies.

While important studies proceed in the domain of etiology and prevention, the demand for treatment services has risen steadily. Concurrently, the Foundation has become more and more concerned about the question of what constitutes effective treatment, and here the evidence is far from encouraging. The remainder of this essay is devoted to a discussion of the major problems associated with treatment and will highlight the Foundation's search for better treatment methods and efforts to ensure that the people of Ontario have access to the best that can be offered at a cost they can afford.

The Value of Treatment

A number of studies in recent years has raised some questions about the value of various treatment methods for alcoholics especially complex, relatively expensive treatment packages. The consistency with which these studies have failed to demonstrate effectiveness has been disappointing. While these studies have suffered from design defects which have cast some doubt on the results obtained, an exceptionally well-designed study of the value of conventional treatment was conducted by Griffith Edwards and colleagues in 1977. Unfortunately, but convincingly, it confirmed the conclusions regarding lack of effectiveness described in earlier studies. Because of its importance, this study merits closer examination.

The patients were 100 married men aged 25 to 60 who were referred by various agencies to the Alcohol Treatment Unit of the Maudsley Hospital in London, England. All had been identified as having a drinking problem. Selected for the study were those who were found on examination to be free from severe physical disease, psychotic illness, and brain damage. Each patient was subjected to a thorough three-hour assessment which included physical examination, blood tests, liver function tests, psychiatric examination, and a battery of psychological tests concerned with personality, self esteem, and marital relations. In addition, the subjects were interviewed by a social worker and required to undergo additional tests. The wives completed a questionnaire administered by the social worker.

Following the assessment, the subjects were assigned randomly to two groups. One group of 50 subjects was given no treatment but each was simply and sympathetically told that he had an alcohol problem. They were told the responsibility for discontinuing their drinking lay in their own hands and they received no further appointments or treatment. Their progress, however, was monitored by consultations and visits by a social worker, to the wife. The second group was given medication (calcium cyanamide), drugs for withdrawal, an introduction to Alcoholics Anonymous, appointments with a psychiatrist, continuing out-patient care for 12 months, and in-patient care if not responding well to treatment.

At the end of 12 months, detailed comparisons were made of the progress of the two groups. Drinking patterns, social adjustment, marital relationships, and lost time from work were analyzed. The clear conclusion pointed to no significant difference in the outcome for those who received only initial advice to stop drinking and those who received the conventional program.

This study, like those preceding it, is not an indictment against treating the alcoholic. When people seek help they should receive, on humanitarian grounds, whatever support can reasonably be provided. Nor does the study justify any general conclusion that no treatment is effective. The findings might not necessarily apply for populations other than this particular population of married men. What the outcome of the study does suggest, however, is that until new modalities of clearly demonstrated efficacy have been developed through appropriate research, it would be wise to utilize simpler, less intensive, and more economical interventions rather than the more intensive and more costly approaches to treatment. It is also clearly important to try to tailor treatment to individual needs rather than to offer the same package of care to everyone.

Services for Ontario's Alcoholics

Two surveys of treatment services for alcoholics in Ontario were conducted recently: one was by consultant Chetram Singh for the provincial Ministry of Health; the other was a national survey conducted by health research scholar Angus Reid. These studies demonstrate clearly that an extensive network of services has quietly emerged throughout the province. The Foundation's regional offices have performed an important catalytic role in the establishment of these services. They are to be found in hospitals, health clinics, social and health service agencies, public health units, correctional centres, and a number of special facilities dedicated to treating the alcoholic and drug addict. A striking feature of treatment in Ontario is the wide variety of services offered. Some are out-patient services, some are residential; some emphasize individual therapy, others group therapy; some rely on education; some are conceived as medical models, others as non-medical models; some are designed as self-governing communities, and some rely on the tenets of Alcoholics Anonymous. An equally wide range of therapists is involved, including physicians, psychiatrists, psychologists, social workers, nurses, clergy, lay persons, and recovered alcoholics. The clientele also varies from setting to setting -- employed alcoholics, chronic drunkenness offenders, the under-privileged and the wealthy, women, youth, native peoples, the elderly.

The Foundation during 1976 decided that although much remains to be learned about treatment methods, time has come for a more orderly, more systematic approach to treatment. It can be advocated on the basis of accumulated knowledge and experience. Accordingly, the Foundation established a Task Force on Treatment Services charged with developing a blueprint for a comprehensive network of services integrated fully into the existing health network, tailored to the needs of unique populations, and standardized as to programs, staffing, therapist qualifications, and facilities. The terms of reference are shown on the next page. The membership of the task force is drawn from Foundation staff, the Ministry of Corrections, Queen's University, and the Donwood Institute. Their report is due at the end of 1977. It will provide, for the first time, a position of advocacy for the Foundation and a source of advice

TASK FORCE ON ALCOHOLISM TREATMENT SERVICES

Terms of Reference

1. Identify the discrete populations of alcoholics in Ontario requiring separate treatment goals and/or methods. Estimate the numbers in each group and their distribution in Ontario according to type of community and geographic location.

   (The purpose of this objective is to recognize that the problems presented by alcoholics in different life situations are very different and that both the objectives of treatment and the methods need to be consistent with what appears to be realistic given the current state of knowledge. For example, disparate groups for whom a prima facie case for distinctive therapy might be made include chronic drunkenness offenders, school age youth, employed alcoholics, alcoholics with organic disease, native peoples, etc.).

2. For each distinctive population of alcoholics, identify the specific goals of treatment.

3. Provide a descriptive title for the service appropriate to each type of population, e.g. detoxication centre, halfway house, out-patient clinic, in-patient clinic, etc.

4. Provide a description of the methods appropriate to each of the goals and each of the populations.

5. Identify the minimum unit size (in terms of staff) for each service unit compatible with operating it with full-time personnel. Identify the patient capacity of each service unit.

6. List the kinds and numbers of staff required for each service unit.

7. Describe the minimum physical plant requirement for each service unit.

8. Identify the population required to justify each type of service unit.

9. Estimate the number of service units of each type necessary to meet the province's needs.

10. Relate the number and location of each service unit required to the existing resources.

11. Estimate the operating cost for each type of service unit on both a per unit and a per patient basis.

12. Estimate the total additional costs to modify existing services and, where necessary, establish and operate each type of service unit.

13. Propose priorities for the phasing-in of the various service units.

14. Identify manpower implications of establishing the various service units and suggest appropriate training requirements to meet identified shortfalls.

15. Develop a critical path covering all of the above designed to provide a Report to the President in a period of one year.

to the government and to the health network. From it should emerge a pattern of helpful and economic services based on the best information available.

The Chronic Drunkenness Offender

For one group of alcoholics—the chronic drunkenness offenders—progress towards a system of care is more advanced. Prior to the 1970s, the method of handling drunkenness offenders in Ontario was by arrest, trial, and, in many cases, jail sentences. This approach created a cycle of intoxication, legal intervention, and subsequent intoxication. It generated a large number of convictions for drunkenness (56,290 in 1966), clogged the justice system, was expensive, and offered little by way of benefit to those arrested or to society.

In an effort to devise an alternative approach, the Foundation established a detoxication centre in 1968. Thereafter, an ARF Task Force on Detoxication Planning was established and this led to an "Interdepartmental Committee on Chronic Drunkenness Offenders" with participants from the Foundation, Justice, Correctional Services, and Health, Social and Family Services. The committee recommended in 1972 that police be allowed to take inebriates to detoxication centres established in connection with hospitals. The centres were conceived as facilities for short-term stays, designed to channel this population into the health network instead of into the jails. It was hoped that after initial sobering they could be referred to long-term halfway houses or recovery homes. The Ministry of Health was empowered to establish detoxication centres and, through a change in the Liquor Control Act, the police were empowered to take persons arrested for drunkenness to the centres instead of to jail.

Unfortunately there was an expectation the detoxication centres would themselves provide care and rehabilitation. Although they were conceived by the interdepartmental committee as no more than portals to recovery homes, where rehabilitation might then take place, the idea that the centres themselves would somehow contribute to rehabilitation created false and unfulfilled expectations.

Some 13 detoxication centres have been established and, through the Ministry of Community and Social Services, some 17 recovery homes are currently in operation. Legal responsibility for the detoxication centres rests in each case with a local hospital. The centres are staffed mainly by paraprofessionals and the directors have been trained by the Addiction Research Foundation. The system has been in operation long enough for the Foundation to have evaluated the detoxication centres.* A study of the recovery homes is in progress.

Some important findings of the evaluation have been:

1. Although the centres were intended as an alternative means of dealing with the chronic drunkenness offender, "upward of 50% of the detox admissions have not been arrested for drunkenness in the past year, and many admissions have stable accommodation and family ties."

2. Only about 10% of detox admissions are successfully referred to longer-term facilities.

*Helen Annis et al, *Task Force II Report on the Operation and Effectiveness of the Ontario Detoxication System*, Addiction Research Foundation of Ontario, 1976.

3. There is little evidence of positive effects of detox on the clients' post-detox drinking behavior. On the average, arrests after detox admission do not decline. Readmission rates are as high as 70% over two years.

4. Accounts by skid row inebriates, as well as by policemen and administrators of skid row services, suggest there has been a deterioration in the physical health of the public inebriate. In short, the skid row inebriates have more time to drink and fewer interruptions of drinking sprees.

5. Attitudes of current skid row alcoholics suggest that detoxication centres are seen primarily as drying-out and caretaking agencies rather than as gateways to rehabilitation.

These and other negative findings were perhaps predictable. They are discouraging mainly in the failure to initiate a rehabilitative process except for a very small minority. Nevertheless the approach, subject to some needed improvements, makes more sense than the historical "revolving door" through the jails. All evidence suggests that we have not yet learned how to effectively rehabilitate the skid row population. Yet these unfortunate people must be cared for. The detoxication system and the recovery home network will continue to evolve. Clear, realistic goals are needed and they must be accompanied by policy and management practices designed to achieve those goals. The Foundation is continuing its scrutiny of the system and has offered recommendations to clarify objectives and enhance performance of the detoxication centres. When the current assessment of the recovery homes is complete, recommendations for their future development will also be prescribed.

Treatment Research

Improvement in treatment methods for all populations of heavy drinkers remains a high priority. The Foundation has major commitments to research directed at improving outcomes. The development and testing of new approaches is a major concern of the Clinical Institute. A complex system of treatment modules is being tested at 8 May Street, a Toronto clinic offering services for employed alcoholics referred by participating industries. Treatment techniques for the chronic drunkenness offender are being studied at a residential centre on Spadina Road in Toronto. The Foundation has completed a 10-year project assessing the value of a residential self-governing community coupled with a work setting at Bon Accord near Elora, Ontario. A number of smaller studies is conducted in other parts of the province.

Among all these studies, the most promising is a major project—still in its early stages—within the Clinical Institute. It is most promising because it represents a fresh approach and a sophisticated design to implement that approach. As a hypothesis, the study rejects the concept that treatment can be uniform for all patients. On the contrary, it is assumed that treatment should be tailored carefully to the individual and should be based on a thorough diagnostic assessment. The system is called the Core-Shell model. The core consists of an elaborate and thorough assessment provided for every patient. It takes three days to complete and includes physical and psychiatric examination, psychological testing, laboratory tests, and work, family, and social histories. Following the assessment, each patient is referred to one or more treatment modules

appropriate to the patient's particular needs. The treatment modules form the shell of the Core-Shell system. They specialize, for example, in family therapy, occupational therapy, individual counseling or psychotherapy, behavioral modification, etc. The modules need not be located in the hospital. Indeed it is likely the shell modules will embrace resources outside the Clinical Institute. Each patient's progress is followed in detail by a research group whose findings are intended to operate as a feedback to improve both the operation and effectiveness of the treatment modules and also the capability of the assessment core to direct patients to the appropriate treatment module. The system offers the prospect of treatment services both more effective and more economical in that they provide each patient with only the treatment he or she needs.

It is reasonable to conclude that, at the present time, the treatment of alcoholism is variable in design and unpredictable in results. There is no doubt many persons are helped—to the point of having their lives not only saved but also restored to usefulness. It is, unfortunately true, however, that failures are common and that much needs to be done to improve the prospects for the individual seeking help.

This account of alcohol treatment in Ontario *can* end on a promising note. While medical complications of alcoholism are numerous and serious, progress in dealing with many of them is encouraging. One of the most common complications is cirrhosis, the most rapidly increasing cause of death among the male adult population in Ontario. Studies of this problem have been pursued in the Foundation for several years. Within the past three years, a careful study of the metabolic changes occurring in the livers of alcohol-treated animals has led to a new hypothesis by Foundation scientists. Involved is a new method of using an anti-thyroid drug known as propylthiourcil (PTU) which was successfully tested on laboratory animals and shown to be effective in treating and preventing alcoholic hepatitis. Initial experiments with humans suffering from alcoholic hepatitis, which itself may be lethal and also leads to cirrhosis, have now been completed and results show this drug seems indeed effective against this disease. Additional studies are underway to determine the best dosage and combinations with other medication. It looks promising that such improvements in the treatment of the complications of alcohol use will shorten the hospital stay for patients suffering from this disease and thereby substantially reduce associated health care costs.

John B. Macdonald
President
Addiction Research Foundation

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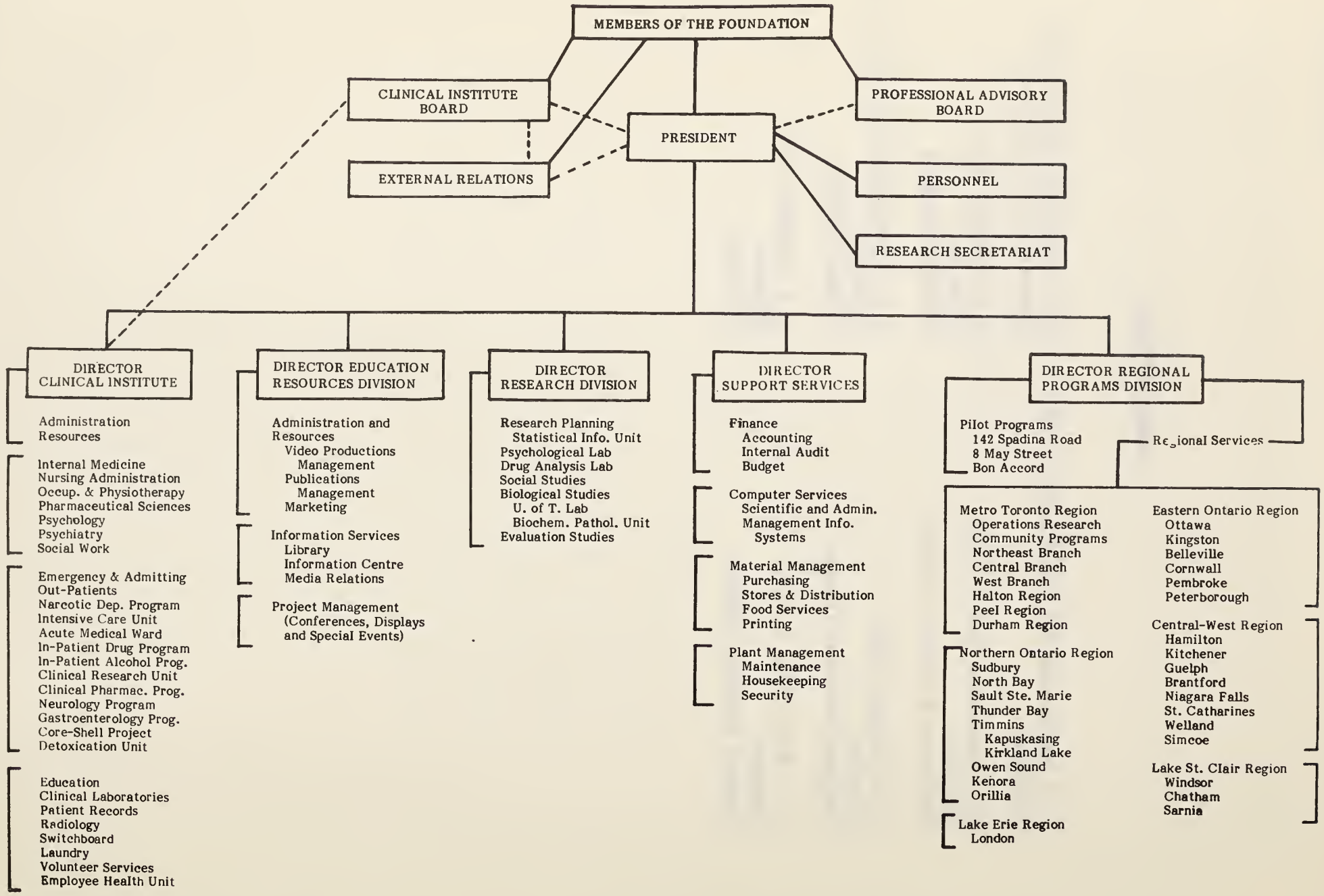

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The Alcoholism and Drug Addiction Research Foundation is an agency of the province of Ontario which operates specialized research, educational, clinical, and service development programs throughout the province.

The Foundation is a crown corporation established by an Act of the Ontario Legislature and supported through the Ministry of Health, partly through direct annual grants and partly (for operation of the Clinical Institute) through Ontario's Hospital Insurance Plan.

Responsibility for the Foundation's overall policies rests with the Members of the Foundation, a group of community representatives who are appointed by the Lieutenant Governor in Council. The Members, who serve voluntarily, appoint the President who is the chief executive officer. A Professional Advisory Board is appointed by the Members with the concurrence of the Lieutenant Governor in Council.

The provincial headquarters of the Foundation at 33 Russell Street, Toronto, groups together the Research Division, the Clinical Institute, the Education Resources Division, and the Administrative Division.

Within the Toronto area and elsewhere in the province, the Foundation also operates a series of Pilot Projects, which are time-limited practical experiments with specific therapeutic approaches to alcohol and drug problems.

Across Ontario the Foundation maintains 34 regional offices whose primary responsibility is to assist communities to develop appropriate community-based services for the treatment and prevention of alcohol and drug problems. The guiding principle is to relate community programs to Ontario's developing system of regional and district health councils as well as to other forms of regionalization occurring in education, justice, and social service fields.

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